THESIS

FOR THE AWARD OF DEGREE OF

DOCTOR OF MEDICINE

SESSION 2022-2025

"TO DETERMINE THE PROFILE OF COMMUNITY ACQUIRED AND HOSPITAL ASSOCIATED URINARY TRACT INFECTIONS PATHOGEN AND THEIR SUSCEPTIBILITY PATTERN WITH SPECIAL REFERENCE TO MRSA, ESBL, MBLS AND AmpCs"

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ACKNOWLEDGMENT

At the outset, I thank The Lord Almighty for giving me the strength to perform all my duties.

I would express my humble gratitude and sincere thanks to my guide, **Dr. Geeta Gupta,** MD, Professor, Department of Microbiology, Santosh Medical College and Hospital, Ghaziabad, for her encouragement and kind support. It is my privilege to have worked under her valuable guidance, whose supervision and encouragement have immensely helped in the successful accomplishment of this study.

My sincere thanks and heartfelt gratitude to **Dr. Ashutosh Rawat**, Head of Department, Department of Microbiology, for his continuous support and suggestions which led to the successful completion of this study.

I am grateful to **Dr. Alka Agrawal,** Dean, Santosh Medical College and Hospital, Ghaziabad, for permitting me to utilize the college and hospital facilities for my dissertation.

I am grateful to my colleagues, and my juniors who always lent their helping hands.

My sincere thanks to all the technical staff of the Department of Microbiology, Santosh Medical College and Hospital, Ghaziabad, for their help.

My deepest thanks go to my caring parents, **Mr. Manoj Gupta** and **Mrs. Anita Gupta**, my supportive in-laws, **Mr. Binod Prasad** and **Mrs. Laxmi Devi**, my loving husband, **Mr. Vivek Kumar,** and my supportive sister, **Dr Radhika Gupta,** for their unwavering support and help throughout this journey.

My deepest thanks go to my friends Dr. Jagdeepak, Dr. Priyanka and Dr. Tamanna for their constant support when I needed most.

I express my sincere thanks and gratitude to all the patients who form the backbone of this study without whom this would not have been possible.

With sincere thanks,

Dr Meet Gupta

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Introduction

INTRODUCTION

Urinary tract infections (UTIs) represent a significant health issue, being the second most prevalent type of infection acquired in hospitals. They account for approximately 35% of all nosocomial infections. Research indicates that around 10% of individuals will experience a UTI at some point in their lives. This condition affects both males and females across all age groups, including newborns.

UTIs occur when bacteria invade any part of the urinary tract, which includes the kidneys, bladder, ureters, and urethra. The risk of developing a UTI is not limited to a specific demographic; rather, it spans various populations, emphasizing the need for awareness and effective management strategies to address this widespread concern.

Several key factors contribute to the development of urinary tract infections (UTIs). These include gender, age, malnutrition, low socioeconomic status, and inadequate hygiene. Additionally, structural and functional abnormalities of the urinary tract can also increase the risk of UTIs. The most frequently identified pathogens in urine samples associated with UTIs are Escherichia coli, Klebsiella spp., Staphylococcus saprophyticus, Proteus spp., and Pseudomonas spp.[1]

Urinary tract infections (UTIs) can be categorized into two main types: uncomplicated UTIs and complicated UTIs. This classification is based on the underlying factors that contribute to the development of the infections. Bacteria can enter the urinary tract and lead to an infection through two primary pathways: the ascending route or the hematogenous route.

In women, the ascending route is the more prevalent method for the onset of these infections. In this case, the bacteria typically come from fecal material or the vaginal area, making it crucial to consider these sources when assessing the risk of UTIs . Understanding these

pathways helps in both prevention and treatment strategies for managing urinary tract infections effectively.

The treatment of infections has become increasingly challenging because of the rise in multidrug-resistant bacteria, specifically gram-positive cocci and gram-negative bacilli. This situation is concerning because these resistant strains are linked to higher rates of illness and death, longer hospital stays, and increased healthcare expenses. As these bacteria become more resistant to available antibiotics, it complicates the ability of healthcare providers to effectively manage infections, leading to significant implications for patient outcomes and overall healthcare systems. Addressing this issue is crucial for improving health outcomes and controlling costs associated with medical care.

Methicillin-resistant Staphylococcus aureus (MRSA) is linked to a significant increase in complications, extended hospital stays, and prolonged treatment durations.[2] The rise of extended-spectrum beta-lactamases (ESBLs), AmpC beta-lactamases, and carbapenemases is a primary factor contributing to multidrug resistance in Gram-negative bacteria. Therefore, it is crucial to identify MRSA, as well as ESBL, metallo-beta-lactamase (MBL), and AmpC producers, to prevent resistant urinary tract infections (UTIs) and to reduce the length of hospital admissions.[3]

Urinary tract infections (UTIs) are among the most common infections encountered in both community and hospital settings. These infections can significantly impact patient health, leading to complications, prolonged hospital stays, and increased healthcare costs.[4] The emergence of multidrug-resistant pathogens, particularly Methicillin-resistant Staphylococcus aureus (MRSA), extended-spectrum beta-lactamases (ESBLs), metallo-beta-lactamases (MBLs), and AmpC beta-lactamases, poses a considerable challenge in the management of UTIs.[5]

Community-acquired UTIs typically arise from pathogens present in the general population, while hospital-associated UTIs are often linked to organisms acquired during hospitalization, frequently due to invasive procedures or antibiotic use. Understanding the profiles of these pathogens and their susceptibility patterns is critical for effective treatment and prevention strategies.[6]

The clinical significance of managing antibiotic use extends beyond improving individual patient outcomes to impacting broader public health and economic factors. Studies have highlighted the need for more robust evidence to assess the impact of stewardship programs on clinical and economic outcomes, such as reducing hospital stays and minimizing healthcare costs associated with antibiotic resistance. As antibiotic resistance continues to pose a significant challenge, ongoing efforts in antibiotic stewardship remain critical in curbing the spread of resistance and ensuring the effectiveness of antibiotics for future generations.[10]

Metallo-beta-lactamases (MBLs) are enzymes that confer resistance to a broad range of beta-lactam antibiotics, including penicillins, cephalosporins, and carbapenems, which are typically reserved for severe infections. These enzymes work by breaking down the antibiotic molecule before it can exert its effect on the bacteria. The presence of MBL genes in bacteria is particularly concerning because they can be spread between different species through horizontal gene transfer, leading to rapid dissemination of resistance. This makes infections caused by MBL-producing organisms challenging to treat and control, often requiring the use of less conventional and more toxic antibiotics.[11]

Extended-spectrum beta-lactamases (ESBLs) are enzymes produced by certain bacteria that have evolved the ability to break down and inactivate a wide variety of beta-lactam antibiotics, including third-generation cephalosporins and monobactams. ESBLs are mostly found in the Enterobacteriaceae family, such as E. coli and Klebsiella pneumoniae, which are common

culprits of community-acquired and hospital-acquired infections. The spread of ESBL-producing bacteria is a major concern in healthcare settings as it limits the effective antibiotic options for treating infections, leading to higher medical costs, longer hospital stays, and increased mortality.

AmpC- in addition to antibiotic to which ESBL producers are resistant AmpC beta lactamase producers are resistant to cephamycin but sensitive to carbapenems.

Methicillin-resistant Staphylococcus aureus (MRSA) is one of the most well-known antibiotic-resistant bacteria, notorious for causing difficult-to-treat infections in both healthcare and community settings. MRSA strains are resistant to all beta-lactam antibiotics, including methicillin and other more common antibiotics such as oxacillin, penicillin, and amoxicillin. This resistance makes MRSA infections challenging to manage, requiring alternative treatments that may not be as effective or are more toxic. MRSA is capable of causing a wide range of infections, from minor skin infections to severe diseases such as pneumonia, bloodstream infections, and sepsis, posing significant risks in both clinical and community environments.

This study aims to assess the characteristics of both community-acquired and hospital-associated UTIs, focusing specifically on the prevalence of MRSA, ESBLs, MBLs, and AmpC producers. By examining the susceptibility patterns of these pathogens, we can enhance our understanding of their behavior and inform clinical practices, ultimately improving patient outcomes and reducing the burden of antibiotic resistance in urinary tract infections.

Need for Study

NEED FOR STUDY

Urinary tract infections (UTIs) are among the most common bacterial infections encountered in both community and hospital settings, significantly impacting patient morbidity and healthcare costs. The emergence of multidrug-resistant pathogens, including Methicillin-resistant Staphylococcus aureus (MRSA), Extended-spectrum beta-lactamases (ESBL), Metallo-beta-lactamases (MBLs), and AmpC beta-lactamases, poses a major challenge in the effective management of UTIs. Understanding the profile of pathogens causing UTIs, along with their susceptibility patterns, is crucial for guiding appropriate empirical therapy and developing effective treatment protocols. This study aims to characterize the microbiological profile of community-acquired and hospital-associated UTIs and assess the resistance patterns of these significant pathogens, ultimately contributing to improved clinical outcomes and better stewardship of antibiotic resources.

Aims and

Objective

AIMS AND OBJECTIVES

Aim:

- To study the profile of community acquired and, hospital associated urinary tract infections pathogens and their susceptibility pattern with special reference to MRSA, ESbL, MBLs and AmpCs

Objectives:

1. To isolate uropathogen causing UTI
2. To identify uropathogen causing UII
3. To detect antibiotic susceptibility pattern of isolate organism
4. To detect MRSA, ESBLS, MBLs and AmpCs producing isolates from urine
5. To find out the prevalance of community acquired and hospital associated UTI

Review of

Literature

REVIEW OF LITERATURE

Urinary tract infections (UTIs) are defined as health conditions characterized by the presence of pathogenic microorganisms in the urine, bladder, urethra, kidneys, or prostate, accompanied by clinical signs and symptoms.[12] UTIs rank as the second most prevalent bacterial infections globally, affecting individuals across all age groups.[13] Approximately 50% of women will experience at least one UTI in their lifetime, with the highest prevalence occurring in those aged 16 to 64 years.[14] Although UTIs are rare in boys, they can occur within the first year of life, especially among those with anatomical or functional abnormalities.[15] The likelihood of recurrent UTIs is significant, often due to treatment lapses or cessation, leading to reinfection by the same or different pathogens.[16]

UTIs are classified as uncomplicated or complicated. Uncomplicated UTIs typically occur in healthy, non-pregnant women, while complicated UTIs can affect individuals of any age or sex and are often associated with underlying health issues. Predisposing factors for complicated UTIs include renal calculi, renal failure, indwelling catheters, renal transplantation, immunosuppression, urinary obstruction, and pregnancy.[17] While bacterial pathogens are responsible for over 95% of UTI cases, other microorganisms, such as fungi and viruses, can also be involved.[18]

Urinary tract infections (UTIs) have emerged as a significant public health concern, largely due to their high prevalence across various populations and the troubling increase in antimicrobial resistance observed in recent years. These infections are not only common but also pose substantial challenges to healthcare systems worldwide, affecting millions of individuals annually. The epidemiology of UTIs can differ markedly between community-acquired

infections (CAUTIs) and hospital-associated infections (HAUTIs), highlighting the need for tailored approaches in their diagnosis and management.

Community-acquired infections (CAUTIs) typically arise in individuals who are otherwise healthy and are often caused by a limited range of pathogens, primarily Escherichia coli. In contrast, hospital-associated infections (HAUTIs) tend to occur in patients with underlying health conditions or those undergoing invasive procedures, resulting in a broader spectrum of causative organisms, including more resistant strains. These differences necessitate distinct clinical strategies, as the treatment and prevention of these infections rely heavily on understanding their unique epidemiological characteristics. Therefore, a comprehensive examination of both CAUTIs and HAUTIs is crucial for developing effective diagnostic protocols and therapeutic interventions aimed at reducing the burden of UTIs and combating the rising tide of antimicrobial resistance.

Pathogen Profile

Several studies have consistently identified Escherichia coli as the predominant pathogen responsible for urinary tract infections (UTIs), both in community-acquired urinary tract infections (CAUTIs) and hospital-associated urinary tract infections (HAUTIs). The data indicates that E. coli accounts for a strikingly high proportion of these infections, estimated to represent approximately 70-90% of all diagnosed cases.[19] This prevalence highlights the critical role that E. coli plays in the overall epidemiology of UTIs.

In addition to E. coli, other pathogens frequently identified in community settings include Klebsiella pneumoniae, Proteus mirabilis, Enterococcus faecalis, and Staphylococcus saprophyticus. These organisms are notable for their varying pathogenic mechanisms and resistance profiles, contributing to the complexity of UTI management in the community. For

instance, Klebsiella pneumoniae is known for its ability to produce extended-spectrum beta-lactamases (ESBLs), which can complicate treatment options.

HAUTIs often present with a broader spectrum of microbial organisms, reflecting the diverse environments and risk factors associated with hospital settings. Pathogens such as Pseudomonas aeruginosa and Acinetobacter species are commonly isolated in these infections. Both organisms are notorious for their multi-drug resistance and can lead to more severe clinical outcomes in hospitalized patients. The presence of such resistant pathogens in HAUTIs underscores the necessity for vigilant infection control practices and tailored antibiotic therapies in healthcare facilities.[21] Thus, the understanding of the pathogen profile is crucial for developing effective diagnostic and therapeutic strategies in the management of both community-acquired and hospital-associated urinary tract infections.

Hospital-Associated UTIs

Hospital-acquired urinary tract infections (HAUTIs) tend to present a more complex clinical scenario compared to community-acquired UTIs, primarily due to the increased prevalence of multidrug-resistant organisms within this population. The common pathogens implicated in HAUTIs include Escherichia coli, Klebsiella species, Enterobacter species, Pseudomonas aeruginosa, and Methicillin-resistant Staphylococcus aureus (MRSA). These pathogens are often associated with significant morbidity and can complicate treatment options.

Patients hospitalized for various reasons are at an elevated risk for developing HAUTIs due to several contributing factors. Prolonged catheterization, which is frequently necessary for patients with urinary retention or those undergoing certain medical procedures, increases the likelihood of bacterial colonization and infection. Additionally, surgical interventions can disrupt normal urinary tract integrity and promote infection risk. Immunocompromised patients, including those undergoing chemotherapy, organ transplantation, or those with

chronic illnesses, are particularly vulnerable to infections due to their reduced ability to mount an effective immune response.[22]

Recent research has indicated a concerning shift toward the isolation of more resistant strains of bacteria in hospital settings, underscoring the need for a reevaluation of existing empirical treatment guidelines. As resistance patterns evolve, traditional therapeutic approaches may become less effective, necessitating the adoption of alternative strategies and updated guidelines to ensure optimal patient outcomes.[23] This evolving landscape of HAUTIs highlights the importance of continuous surveillance and research to inform clinical practice and adapt to the challenges posed by antibiotic resistance.

Antimicrobial Resistance Patterns

Antimicrobial resistance (AMR) represents a formidable challenge in the management of urinary tract infections (UTIs), complicating treatment options and adversely affecting patient outcomes. Among the various resistant pathogens, those producing extended-spectrum beta-lactamases (ESBLs) have gained prominence. Organisms such as Escherichia coli and Klebsiella species are frequently identified as ESBL producers in both community-acquired and hospital-associated infections. Their prevalence has led to significant resistance against commonly prescribed beta-lactam antibiotics, which are typically the first-line treatment for UTIs.

The emergence of metallo-beta-lactamases (MBLs) poses an additional layer of concern, as these enzymes provide resistance to a wide range of beta-lactam antibiotics, including carbapenems, which are often reserved for severe infections. MBL-producing strains, particularly those from the genera Pseudomonas and Acinetobacter, have been increasingly documented in clinical settings, further complicating therapeutic approaches.[24] The rising incidence of these resistant pathogens highlights the urgent need for enhanced surveillance,

prudent antibiotic use, and the development of new therapeutic strategies to combat the growing threat of AMR in UTIs. Addressing these challenges is essential for improving patient care and ensuring effective management of urinary infections in diverse healthcare environments.

The prevalence of Methicillin-resistant Staphylococcus aureus (MRSA) in urinary tract infections (UTIs) has become an increasingly significant concern in recent years. While MRSA has long been recognized primarily for its role in skin and soft tissue infections, emerging evidence shows that it can also be isolated from urinary specimens. This shift highlights the necessity for enhanced surveillance and awareness among healthcare providers regarding MRSA's potential to contribute to urinary infections.[25]

In addition to MRSA, the presence of AmpC beta-lactamases has been a notable challenge in the treatment of UTIs, particularly those caused by Enterobacter species. These enzymes confer resistance to cephalosporins, a commonly used class of antibiotics for treating infections. The detection of AmpC beta-lactamases complicates therapeutic decisions and necessitates the use of alternative antibiotics, which may not be as effective or may come with a higher risk of side effects.[26] As the landscape of urinary pathogens continues to evolve, understanding the implications of these resistant organisms is critical for optimizing treatment strategies and improving patient outcomes. The need for continuous monitoring and research into the prevalence and resistance patterns of such pathogens is vital to address this growing challenge in clinical practice.

Susceptibility Patterns

Recent studies have underscored the vital role of local antibiograms in shaping and guiding empirical therapy for urinary tract infections (UTIs). Local antibiograms provide essential insights into the resistance patterns of pathogens within specific healthcare settings, enabling

clinicians to make informed decisions regarding antibiotic selection. For example, a comprehensive study conducted in a tertiary care hospital revealed that while Escherichia coli continues to demonstrate notable susceptibility to nitrofurantoin and fosfomycin, there is a concerning upward trend in resistance to fluoroquinolones and trimethoprim-sulfamethoxazole.[27] This rising resistance highlights the need for continuous surveillance and reassessment of treatment protocols, as commonly used antibiotics become less effective.

Additionally, research has shown that despite posed by extended-spectrum beta-lactamase (ESBL)-producing pathogens, susceptibility to certain antibiotics, such as amikacin and carbapenems, remains relatively high. This finding emphasizes the importance of these agents as critical treatment options for managing resistant UTIs.[28] The sustained effectiveness of amikacin and carbapenems underscores their potential role in combating multidrug-resistant infections, particularly in cases where conventional therapies fail. Overall, the integration of local antibiogram data into clinical practice is essential for optimizing antibiotic use and improving patient outcomes in the face of growing antimicrobial resistance.

Clinical Presentation

Dysuria is widely recognized as one of the most prevalent symptoms associated with urinary tract infections (UTIs), often accompanied by urgency and increased frequency of urination.[29] In the current study, we observed that fever emerged as the most common symptom, affecting 74% of the patients. Following fever, dysuria was reported by 45% of participants, indicating its significant presence in UTI cases. Additionally, symptoms such as vomiting and increased urinary frequency were noted in 37% and 23% of patients, respectively.

Among females with complicated UTIs, the prevalence of other symptoms was also noteworthy. A considerable proportion of these patients reported experiencing suprapubic pain, which occurred in 28.9% of cases, while loin pain was present in 26.3% of the participants.

These symptoms suggest a more severe clinical presentation in females suffering from complicated infections. Interestingly, the occurrence of frank pyuria was found to be relatively low, affecting only 4% of patients, particularly among those with uncomplicated UTIs. This finding highlights the variability in clinical manifestations and the potential for atypical presentations in different patient populations. Understanding these symptoms is crucial for improving diagnostic accuracy and enhancing patient management strategies in UTI cases.[30]

Epidemiology and Risk Factors

Urinary tract infections (UTIs) rank among the most commonly encountered bacterial infections worldwide, with studies indicating that approximately 10% of individuals will experience a UTI at some point in their lives.[31] This condition particularly affects women, who are at a significantly elevated risk; nearly 50% of women will experience at least one UTI during their lifetime. Moreover, among those who have suffered a UTI, studies suggest that 20-30% of adult women will experience a recurrence within just three to four months following the initial infection, highlighting the challenging nature of managing this condition.

Certain populations are at a heightened risk for developing UTIs. These include infants, who may have immature urinary systems, and pregnant women, who undergo physiological changes that can predispose them to infections. The elderly are also particularly vulnerable, often due to age-related changes in the urinary tract and the presence of comorbidities. Additionally, individuals with spinal cord injuries or those utilizing urinary catheters face an increased risk, as do patients with underlying conditions such as diabetes mellitus or multiple sclerosis, which can compromise immune function and urinary tract integrity. Finally, individuals with anatomical abnormalities in the urologic system are also at risk, as these conditions can hinder normal urinary flow and promote bacterial growth. Understanding these risk factors is crucial for both prevention and management strategies in addressing UTIs.[32]

Diagnosis and Management

The diagnosis of urinary tract infections (UTIs) typically involves a comprehensive approach that includes detailed history-taking, thorough physical examination, and a variety of laboratory tests, with urine culture being a key component. In the context of this study, significant findings were observed regarding the clinical presentation of patients with complicated UTIs. Notably, the presence of significant pyuria—indicating the presence of white blood cells in the urine—was identified in 82.9% of male patients and 81.6% of female patients. This high prevalence underscores the inflammatory response often associated with UTIs. Furthermore, microscopic hematuria, characterized by the presence of red blood cells in the urine, was documented in 24.4% of male patients and 31.6% of female patients with complicated UTIs. These findings highlight the importance of comprehensive diagnostic measures in identifying and confirming UTIs.[33]

Accurate collection and analysis of urine culture specimens are crucial for effective management of UTIs, as they provide essential information regarding the specific pathogens involved. This information is vital for tailoring antibiotic therapy to the individual patient, ensuring that treatment is based on the susceptibility patterns of the identified organisms. Thus, a robust understanding of the diagnostic process, coupled with precise laboratory testing, is essential in guiding effective therapeutic interventions and improving patient outcomes in cases of urinary tract infections.

Akram et al. (2007)[32] conducted a study to determine the etiology and antibiotic resistance patterns of community-acquired UTIs at J N M C Hospital in Aligarh, India. They reported that *E. coli* was the predominant pathogen, accounting for 61% of the isolates, with a high prevalence of ESBL production (42%). The study highlighted the increasing resistance of

uropathogens to commonly used antibiotics, indicating the necessity for updated knowledge on antimicrobial susceptibility patterns to guide appropriate therapeutic interventions.

G. Dalela et al. (2012)[34] performed a study to assess antibiotic resistance patterns in uropathogens, focusing on ESBL, AmpC β-lactamase, and MRSA production in a hospital in Jhalawar. They analyzed 184 clinical isolates from January to September 2011 and discovered that 66.9% of the isolates were ESBL producers. Their findings highlighted that oral antibiotics like amoxicillin/clavulanate and co-trimoxazole should be avoided for empirical UTI treatment due to high resistance rates, advocating for the use of nitrofurantoin after sensitivity testing.

B. Sasirekha et al. (2013)[35] conducted a study to determine the prevalence of Extended Spectrum Beta-Lactamases (ESBL), AmpC β-lactamases, and Methicillin Resistant Staphylococcus aureus (MRSA) among uropathogens. They collected 325 clinical isolates from urinary tract infection (UTI) patients across various tertiary care hospitals over six months. The results indicated that 48.9% of the isolates produced ESBL, 20.4% produced AmpC β-lactamases, and 27.5% were MRSA. They concluded that traditional first-line treatments like ampicillin/sulbactam and norfloxacin are no longer effective due to high resistance, recommending the use of aminoglycosides and carbapenems for complicated UTIs.

Priyadharsini et al. (2014)[36] conducted a study with the objective of isolating and identifying microbial pathogens responsible for urinary tract infections and evaluating the antimicrobial activity of plant extracts against these pathogens. The study concluded that Escherichia coli and Staphylococcus aureus were the predominant pathogens and that extracts from medicinal plants like *Carica papaya*, *Ocimum sanctum*, *Azadirachta indica*, and *Hemidesmus indicus* showed significant antimicrobial activity against these isolates.

Mama et al. (2014)[37] conducted a cross-sectional study with the aim of determining the antimicrobial susceptibility patterns of bacterial isolates from wound infections at Jimma

University Specialized Hospital. They concluded that Staphylococcus aureus, Escherichia coli, and Proteus species were the predominant isolates, with a high frequency of resistance to ampicillin, penicillin, and cephalothin. Acetic acid, dabkin solution, and hydrogen peroxide showed significant bactericidal effects, offering alternative topical agents for wound infection treatment.

Gajamer et al. (2015)[38] focused on the detection of antibiotic resistance patterns among uropathogens at a tertiary health care center in North Bengal, India. The objective was to determine the distribution and susceptibility patterns of bacterial strains isolated from UTI patients. The study revealed that *E. coli* was the most prevalent uropathogen, with a prevalence of ESBL and Methicillin-Resistant Staphylococcus aureus (MRSA) at 33.26% and 75%, respectively. The findings indicated an urgent need to rationalize antimicrobial use and emphasized the critical trend of growing antibiotic resistance in the region.

Shayan and Bokaeian et al., (2015)[39] aimed to characterize ESBL and AmpC-producing *Escherichia coli* isolates from urinary tract infections. They used polymerase chain reaction (PCR) for detection, following initial phenotypic screening by disk diffusion test. The study concluded that *E. coli* isolates with ESBL and AmpC production contribute significantly to cephalosporin resistance. The authors suggested the necessity of reliable phenotypic tests to differentiate between these β-lactamases, highlighting the utility of boronic acid in distinguishing AmpC from ESBL enzymes.

Flores-Mireles et al. (2015)[40] conducted a study with the objective of discussing the epidemiology, mechanisms of infection, and treatment options for urinary tract infections (UTIs). The study concluded that UTIs are caused by various pathogens, most commonly Escherichia coli, and that high recurrence rates and increasing antimicrobial resistance pose

significant challenges to public health. The authors emphasized the need for new clinical treatments to address these issues.

Koshesh et al. (2016)[41] conducted a study with the objective of identifying the bla TEM, bla SHV, bla OXA, and bla PER genes, as well as AmpC-β-lactamase in clinical isolates of *Escherichia coli* recovered from patients with urinary tract infections (UTIs) in Kerman, Iran. They found that over 50% of the isolates were multi-drug resistant, with a higher prevalence of Extended-Spectrum β-Lactamases (ESBLs) in outpatient isolates compared to inpatients. The study concluded that the community prevalence of ESBL-producing *E. coli* strains presents a significant public health challenge, underscoring the importance of monitoring and detecting these resistant strains to inform treatment and prevention strategies.

Masyeni et al. (2016)[42] conducted a retrospective study at two microbial laboratories in Denpasar, Bali, with the objective of identifying bacterial profiles and their antimicrobial susceptibility patterns. They concluded that Staphylococcus spp, Escherichia coli, Streptococcus spp, Enterobacter spp, and Pseudomonas aeruginosa were the predominant pathogens, with high resistance rates to erythromycin and multidrug resistance, particularly in Pseudomonas aeruginosa and Staphylococcus spp. Gentamycin was found to be the most effective antibiotic, highlighting the need for periodic surveillance to develop local antibiograms for better infection management.

Yadav and Sharma et al., (2017)[43] carried out research to detect ESBL and MBL-producing *E. coli* from urine samples collected at a tertiary care hospital. Their objectives included performing antibiotic sensitivity tests and detecting ESBL and MBL production phenotypically. They concluded that 50.70% of *E. coli* isolates produced ESBL, while 7.04% produced MBL. The highest susceptibility was observed for imipenem and meropenem. This study underscored the need for guidelines to aid in the treatment of multidrug-resistant urinary tract infections.

Mahmutovic Vranic et al. (2017)[44] conducted a study with the objective of identifying the most frequent isolates from female outpatients with urinary tract infections. The study concluded that Escherichia coli was the most frequent isolate, followed by Proteus spp., Enterococcus faecalis, and Enterobacter, highlighting the dominance of E. coli as the primary cause of UTIs in female outpatients in Sarajevo.

Sneka and Mangayarkarasi et al., (2018)[45] conducted a study in South India with the objective of identifying the pathogens causing UTIs and determining their antibiotic sensitivity patterns. The study concluded that Escherichia coli was the most common pathogen, followed by Klebsiella and Pseudomonas. Imipenem and vancomycin were found to be the most effective antibiotics, while nalidixic acid and ampicillin showed high resistance rates, indicating the importance of understanding antibiotic resistance patterns for empirical treatment.

Chanda et al. (2019)[46] conducted a retrospective study with the objective of evaluating antibiotic susceptibility patterns of pathogens isolated from routine laboratory specimens at Ndola Teaching Hospital. They concluded that coliform, Staphylococcus aureus, coagulase-negative Staphylococci, and Escherichia coli were the most common pathogens, with high resistance observed against co-trimoxazole, nalidixic acid, and ceftazidime. Gender and location influenced resistance, emphasizing the need for further nosocomial studies to provide a comprehensive understanding of resistance patterns.

Muhammad et al. (2020)[47] conducted a cross-sectional study over seven months to evaluate the prevalence and antibiotic susceptibility of uropathogens. They examined 804 urine samples and found that 36.1% had significant bacterial growth, predominantly E. coli (68.9%). They noted alarming resistance rates, with 85.2% of isolates producing ESBL and 98.3% classified

as multidrug-resistant. They emphasized the necessity of understanding the local microbiological landscape for guiding empirical therapy.

Mancuso et al. (2021)[48] reviewed the critical pathogens associated with antibiotic resistance, highlighting the impact of overuse and misuse of antibiotics on the emergence of resistant strains. They discussed the ESKAPE pathogens designated by the World Health Organization as high-priority due to their threat to public health. Their review stressed the importance of understanding resistance mechanisms to develop new antimicrobial strategies.

Noster et al. (2021)[49] reviewed current methods for the detection of multidrug-resistant Enterobacterales (MDRE), focusing on the mechanisms of resistance such as ESBLs and carbapenemases. The review highlighted the need for rapid and reliable diagnostic techniques to guide therapy and infection control measures, particularly in clinical microbiology settings. They concluded that improving both molecular and culture-based diagnostic methods is crucial for effective management of MDRE in healthcare environments.

Mitiku et al. (2021)[50] investigated the prevalence and associated factors of MRSA among patients suspected of having UTIs at Arba Minch General Hospital, Ethiopia. Their findings indicated a MRSA prevalence of 42.59% among isolated *S. aureus*. The study identified significant associations between MRSA prevalence and factors such as prior UTI history, chronic disease presence, and hospitalization. The authors concluded that MRSA poses a notable risk in UTI patients, highlighting the need for vigilant monitoring and tailored treatment strategies to combat this resistance.

Mwansa et al. (2022)[51] conducted a study from 2019 to 2021 at Livingstone Central Hospital with the objective of assessing antibiotic susceptibility patterns of isolated bacteria. They concluded that Staphylococcus aureus, Escherichia coli, and Enterobacter agglomerans were the most common pathogens, with ampicillin showing the least effectiveness. The study

revealed increasing levels of multidrug-resistant (MDR) strains and methicillin-resistant Staphylococcus aureus (MRSA), urging the re-establishment of empirical therapies to manage infections effectively.

Thounaojam et al. (2022)[52] conducted a study with the objective of examining the production of extended-spectrum beta-lactamases (ESBLs), AmpC β-lactamases, and metallo-β-lactamases (MBL) among multidrug-resistant (MDR) Enterobacteriaceae clinical isolates using phenotypic methods. They concluded that a high prevalence of β-lactamase co-production was observed, especially in *Klebsiella pneumoniae* and *Escherichia coli* isolates. The study emphasized the importance of identifying MDR β-lactamase strains for effective therapy to mitigate the risk of MDR in both hospital and community settings.

Shoaib Khan et al. (2023)[53] aimed to investigate the microbial etiology and resistance patterns of UTIs in a tertiary care center over two years. They processed 9,518 mid-stream urine samples, identifying E. coli as the predominant pathogen (48%) and revealing high resistance rates against beta-lactams and fluoroquinolones. They found that 34.5% of Gram-negative bacteria were ESBL producers, while 40% were carbapenemase producers. They concluded that the increasing resistance among uropathogens necessitates culture and susceptibility testing for effective treatment strategies.

Kharat et al. (2024)[54] highlighted a dramatic increase in antimicrobial resistance in ESKAPE pathogens over the 2010-2020 decade in India. Their study aimed to investigate the rates of antimicrobial resistance in these clinical isolates, revealing a significant rise in resistance to β-lactams and β-lactamase inhibitors. They concluded that the increase in resistance rates necessitates intensified antimicrobial stewardship efforts and continuous monitoring to curb the alarming trends in antibiotic resistance among these pathogens.

Materials and Methods

MATERIALS AND METHODS

PLACE OF STUDY: Department of Microbiology, Santosh Medical College and Hospitals.

DURATION OF STUDY: Twelve months (approximately)

SAMPLE SIZE: 384 urine samples

STUDY: Cross-Sectional Study

Sample Size for Frequency in a Population	
Population size (for finite population correction factor or fpe) (M):	1000000
Hypothesized % frequency of outcome factor in the population (p):	20%+/-5
Confidence limits es % of 100(absolute +/-%)(d):	5%
Design effect (for cluster surveys-DEFF):	1
Sample Size (n) for Various Confidence Level	
Confidence Level (%)	**Sample Size**
95%	384
90%	165
99%	664
97%	471
99.90%	1082
99.99%	1512
Equation	
Sample size (n) = $[DEFF*Np(1-P)]^f$ $[d^2/Z^2_{1-\alpha/2}*(N-1)+p*(1-p)]$	

At the top of the output were the values supplied by the user. In the middle section were sample sizes for various confidence levels, from 80% to 99.99%. In most situations, the 95% confidence level was used, therefore in this example, the sample size was 384.

The sample size formula used was as follows:

$$n = \text{deff} \times \frac{N\hat{p}(1-\hat{p})}{d^2\left(\frac{Z^2}{1+Z^2\left(\frac{N-1}{N}\right)}\right) + \hat{p}(1-\hat{p})}$$

Where:

- n = sample size
- deff = design effect
- N = population size
- p^ = the estimated proportion
- d = desired absolute precision or absolute level of precision
- Z = Z-value (corresponding to the desired confidence level)

References: Schaeffer RL., Mendenhall W., Ott L. *Elementary Survey Sampling*, Fourth Edition. Duxbury Press, Belmont, California, 1990.

- deff = 1
- N = 1 Lakh
- p = 0.33
- q = 0.66
- d = 0.05

After putting values in the given formula, we get n = 333.961

INCLUSION CRITERIA:

1. Age: all age patients were included.
2. Gender: Male and female, both sexes were included.
3. Both OPD and IPD patients were included
4. Patients with a history of UTI symptoms (pain abdomen, urinary incontinence, frequent urination, dysuria, etc.) were included.
5. Correctly collected and transported samples were included.

EXCLUSION CRITERIA:

1. Samples not properly collected.
2. Samples not properly sealed.
3. Samples not properly labelled.
4. Samples not timely transported and processed.

METHOD

1. Urine samples were collected from IPD and OPD in a sterile container.
2. The samples were processed, and uropathogens were identified by
    - **Microscopy**
    - **Culture**
    - **Standard biochemical tests**

Microscopy: Wet mount preparation (to see pus cells and number of bacteria count per hpf).

Culture: Standard loop culture method

Culture-

The samples were streaked on three different types of agar plates: Blood agar, MacConkey agar, CLED (cysteine lactose electrolyte deficient) agar

- The culture plates were incubated at 37 degrees Celsius for 18-24 hours in an incubator.
- Bacterial counts were done by counting the number of colonies and multiplying the number of colony-forming units (CFU) by 1000 to determine the number of microorganisms per ml in the original specimen.
    - **Colony count in urine:** (KASS Criteria)
    - <1000 CFU/ml — contaminant
    - 1000 to 100,000 CFU/ml — indecisive, repeat test
    - 100,000 CFU/ml — significant bacteriuria

Hanging drop:

Bacterial broth drops was prepared on coverslip & kept over a slide, after that drop edge was focused under microscope to see motile bacteria .it is useful to identify esp. GNB.

GRAM STAINING :

PRINCIPLE-

- Gram staining differentiates hacteria by the chemical and physical properties of their cell walls by detecting peptidoglycan which is present in thick layer in gram positive bacteria. A gram positive result in a purple while a gram negative result in a pink

Procedure-

- Make a thin smear and allow to air dry.
- Fix the material to the slide by passing the slide three or four times through the flame of Bunsen burner.
- Place the smear on a staining rack and overlay the surface with crystal violet solution for minute.
- Wash with running water.
- Overlay the smear with Gram's iodine solution for 1 minute. Wash again with water.
- Hold the smear between thumb and forefinger and flood the surface with a few drops of acetone -alcohol decolorizer, until no violet color washes off. This usually takes 10 seconds or less.
- Wash with water and overlay the surface with safranin counterstain for 1 minute. Wash with running water.
- Place the smear in an upright position in a staining rack, allowing the excess water to drain off and the smear to dry.
- Examined first under low-power objective (10x) and then under high-power objective (100x) oil immersion lens of the microscope.
- Gram reaction-Gram positive/ Gram negative
- Morphology-Cocci/Bacilli/Coco bacilli
- Arrangement- Arrange in Clustures /Chains/Singly/ In pairs

Biochemical tests

- For uropathogen isolates, colony was subcultured into peptone water and the following tests were performed:

COAGULASE TEST-

PRINCIPLE: Coagulase cause plasma to clot by converting fibrinogen to fibrin. Two types of coagulase are produced by most strains of S.aureus

Free coagulase which converts fibrionogen to fibrin by activating a coagulase-reacting factor present in plasma. Free coagulase is detected by clotting in the test tube.

Bound coagulase (clumping factor) which converts fibrinogen directly to fibrin without requiring a coagulase-reacting factor. It can be detected by the clumping of bacterial cells in the rapid.

The tube coagulase test (Free):

Procedure:

- Mix 0.1 ml of culture + 0.5 ml of plasma
- Incubate at 37C for 4 h
- Observing the tube for clot formation
- Any degree of clotting constitutes a positive test slide test.

The slide coagulase test-

Procedure:

- Used to detect bound coagulase or clumping factor
- Add one drop heavy bacterial suspension and one drop of plasma on slide
- Mixing well and observing for clumping within 10 seconds

OXIDASE FERMANTATION TEST-

Principle –

- Saccharolytic microorganisms degrade glucose either fermentatively or oxidatively. The end product of Fermentation are relatively strong mixed acids that can be detected in a conventional non test medium. However the acids formed in oxidative degradation of glucose are extremely weak and the more sensitive oxidation-fermentation medium of Hugh and Leifson (OF is required for their detection.

Procedure-

- Two tubes are required for the OF test, each inoculated with the unknown organism, using a straight needle, stabbing the medium three to four times halfway to the bottom of the tube
- One tube of each pair is covered with a 1 cm layer of sterile mineral oil or melted paraffin leaving the other tube open to the air.
- Incubate both tubes at 35°C and examine daily for several days.
- Acid production is detected in the medium by the appearance of a yellow color, In the case of dative organisms, color production may be first noted near the surface of the medium.
- flowing are the reaction pattern-

OPEN TUBE	COVERED TUBE	METABOLISM
Acid (yellow)	Alkaline (green)	oxidative
Acid (yellow)	Acid (yellow)	fermentative
Alkaline (green or blue)	Alkaline (green or blue)	nonsaccharolytic

CATALASE TEST-

PRINCIPLE-

- Catalase is an enzyme that decomposes hydrogen peroxide (H_2O) into water and oxygen.
- Reagents-
- 1% H2O2 stored in a brown bottle under refrigeration and an 18-24 hrs culture of the organism to be tested

PROCEDURE-

- With an inoculating needle or a wooden applicator stick, transfer growth from the center of a colony to the surface of a glass slide.
- Add one drop of 3% H2O2 and observe for bubble form

OXIDASE TEST-

Principle-

- To determine the presence of bacterial cytochrome oxidase using the oxidation of the substrate tetramethylphenylenediaminedihydrochloride to indophenol, a dark purple-colored and

Procedure (Wet Filter Paper Method)-

- A strip of filter paper is soaked with a little freshly made 1% reagent.
- Platinum loop was used to pick a well-isolated colony from a fresh (18 to 24 hour culture) bacterial plate and rubbed on the filter paper.
- Interpretation

- Positive Development of a dark purple color within 10 seconds. Negative: Absence of color.

INDOLE TEST-

Principle:

- Bacteria those possess the enzyme tryptophanase are capable of hydrolyzing and deaminating tryptophan with production of Indole. When Indole react with the aldehyde group of 4-dimethyl amino benzaldehyde, iso amyl alcohol, hydrochloric acid known as Kovacs reagent result in formation of a red color ring complex.

Procedure:

- Test is done by inoculating broth with the test organism and incubates at 37°C for 18-24 hours. Add 15 drops of reagent down the inner wall of the tube and gently shaken.

Interpretation:

- Indole Positive: A red color ring near the surface of the medium.
- Indole Negative: Yellow color ring near the surface of the medium.

METHYL RED TEST-

Methyl red is a pH indicator with a range of between 4-4.4 pH at which methyl red detects acid is considerably lower.

Principle:

- It is a qualitative test for acid production, requiring positive organisms to produce strong acid from glucose through mixed acid fermentation pathway. Many species of Enterobacteriaceae produce sufficient quantity of strong acid that can be detected by methyl red indicator during the initial phase of incubation. Only organisms that can

maintain this low pH after prolong incubation, overcoming the pH buffering system of medium are MR positive.

Procedure:

- The test organism is inoculated in a glucose phosphate broth and incubates at 37°C for 18-24 hours. Add 5 drops of reagent down the inner wall of the tube result in formation of a red color (positive test).

Interpretation:

- MR Positive: Bright red color MR Negative: Yellow color.

VOGUES PROSKAUER TEST-

Principle:

- Pyruvic acid, pivotal compound formed in fermentative degradation of glucose is further metabolized through another pathway and result in production of acetoin. Methyl-glyoxal (acetoin), neutral end product (2,3 butylene glycol) in presence of atmospheric oxygen and 40% KOH, acetoin is converted to diacetyl and α-naphthol serve as catalyst and bring out red color.

Procedure:

- Test is done by inoculating glucose phosphate broth and incubates at 37°C for 18-24 hours. Add 1ml KOH and 3ml α-naphthol in ratio of 1:3. Shake the tube gently for exposure to atmosphere O2 and leave the tube undisturbed for 10 – 15 minutes.

Interpretation:

- VP Positive: Development of pink color in 2-5 min, becoming crimson pink in 30 minutes. VP Negative: Colorless for 30 minutes.

SIMMONS CITRATE UTILIZATION TEST-

Principle:

- This test is used to determine the ability of an organism to utilize sodium citrate as its only carbon source and inorganic ammonium salts as its only nitrogen source. Bacteria that can grow on this medium turn the bromo thymol blue indicator from green to blue.

Procedure:

- Solid (Simmon's) media is used. A bacterial colony is picked up by a straight wire and inoculated into media. These inoculated media is incubated at 37° C for overnight. Simmons's citrate medium contains agar, citrate and bromo thymol blue as an indicator. Original color of the medium is green.

Interpretation:

- **Positive:** growth with an intense blue color on the slant.
- **Negative:** No growth with no change in color (green).

UREASE TEST-

Principle:

- To determine the ability of an organism to produce an enzyme urease which splits urea to ammonia. Ammonia makes the medium alkaline and thus phenol red indicator changes to pink/red in color.

Procedure:

- Test is done by heavily inoculating test organism into slant contain Christensen's urea agar, incubate at 37°C for 24 hours.

Interpretation:

- **Urease Positive:** Pink color.
- **Urease negative:** No color change (Colorless).

TRIPLE SUGAR IRON TEST-

Principle:

- Triple sugar iron agar (TSI) is used to determine whether a gram-negative rod utilizes glucose and lactose or sucrose fermentative and forms hydrogen sulfide (H2S).

Procedure:

- TSI is a composite medium which contains three carbohydrates namely glucose, lactose, sucrose and also ferric salts for testing H2S production. The concentration

of lactose and sucrose is 10 times that of glucose in the medium and phenol red is incorporated as an indicator. This medium is widely used and is in the form of a butt and slant in the test tube. Slant and butt should be equal in length 1.5 inch or 3cm to preserve two chamber effect. Test is done by inoculating the tube with slant and butt by stabbing back of 3-5mm of bottom and slant is streak with back & forth motion, tube is incubated at 37°C for 24 hour

NITRATE REDUCTION TEST-

Principle-

- This test is used to determine the ability of an organism to reduce nitrate. The reduction of nitrate nitrite is determined by adding sulfanilic acid and alpha-naphthylamine. The sulfanilic acid and nitrite react to form a diazonium salt. Thediazonium salt then couples with the alpha-aphylamine to produce a red, water soluble azo dye.

Procedure-

- Inoculate nitrate broth with I to 2 drops from a young broth culture of the test organism.
- Incubate for 48 hrs of 35°C in ambient ait (some organism may require longer incubation adequate growth) Test these cultures 24 hrs after obvious growth is detected or after a maximum of 7 days.
- After a suitable incubation period, test the nitrate broth culture for the presence of gas, reduction of nitrate and reduction of nitrite according to the following steps:

- Observe the inverted Durham tube for the presence of gas, indicated by bubbles inside the tube.
- Add 5 drops each of nitrate reagent solution A (sulfanilic acid) and B (alpha-naphthylamine). Observe for at least 3 minutes for a red color to develop.
- If no color develops, test further with zinc powder. Dip a wooden applicator stick into zinc powder and transfer only the amount that adheres to the stick to the nitrate broth culture to which solutions A and B have been added. Observe for at least 3 minutes for a red color to develop.

Interpretation -

- The nitrate reduction test read for the presence or absence of three metabolic products: gas, (NO_2).

SUGAR FERMENTATION TEST:

Principle:

- To determine the ability of an organism to ferment a carbohydrate incorporated into a basal medium, thereby producing acid.

  Indicator: Phenol red

Interpretation:

- Positive: Yellow
- Negative: Red, orange, peach

TESTING FOR ANTIBIOTIC SUSCEPTIBILITY:[59]

- Antibiotic testing was performed using the Kirby-Bauer disc diffusion method.
- Antibiotic discs were taken for Gram-positive cocci (GPC) and Gram-negative bacilli (GNB) accordingly.
- To specifically mention the drugs used for Gram-positive cocci (GPC) and Gram-negative bacilli (GNB) in the antibiotic susceptibility testing section.

For detection of Methicillin Resistant Staphylococcus Aureus (MRSA)

- **Preparation of Bacterial Isolate**: The first step involves the preparation of a pure culture of bacteria isolate to be tested was made.
- **Application of Antibiotic disc**: Cefoxitin 30 µg used to screen for MRSA was placed on an MHA plate.
- **Incubation:** After disc was placed on MHA plate the plate was incubated at an appropriate temperature, usually 35-37°C for about 18-24 hrs.
- **Observation of Inhibition Zone:** Post incubation, the growth of bacteria around the antibiotic disc was observed. A clear area where bacterial growth has been inhibited known as zone of inhibition can be seen. Around each disc size of zone was measured
- **Interpretation of result** – for MRSA interpretation zone was more then 4mm and less then 21mm.

For detection of Extended Spectrum Beta Lactamase (ESBL)-

- **Preparation of Bacterial Isolate**: The first step involves the preparation of a pure culture of bacteria isolate to be tested was made.
- **Application of Antibiotic disc**: Antibiotic disc of ceftazidime (30ug) and ceftazidime +clavulanic acid (30/10ug) where placed at a distance of 20mm from each other.
- **Incubation:** After disc was placed on MHA plate the plate was incubated at an appropriate temperature, usually 35-37°C for about 18-24 hrs.
- **Observation of Inhibition Zone**: Post incubation, the growth of bacteria around the antibiotic disc was observed. A clear area where bacterial growth has been inhibited known as zone of inhibition can be seen. Around each disc size of zone was measured.
- **Interpretation of results**: ≥ increase in zone diameter for ceftazidime with clavulanic acid dics then that of ceftazidime disc alone then this consider as ESBL producer.

For detection of Metallo beta Lactamase (MBL):

- **Preparation of Bacterial Isolate:** The first step involves the preparation of a pure culture of bacteria isolate to be tested was made.
- **Application of Antibiotic disc**: "Detection of MBLs: Two microgram imipenem discs were placed on MHA plate, 1^{ST} plane and 2^{nd} with EDTA
- **EDTA Supplementation:** The EDTA acts as a chelating agent that binds to the zinc ions required for the catalytic activity of MBL enzymes. By binding to these metal ions, EDTA inhibits the activity of MBLs.

- **Inoculation and Incubation:** The bacterial strain to be tested is swabbed uniformly across the surface of the MHA plate. The two imipenem discs were then placed on the agar surface, typically at a specified distance to ensure that the zones of inhibition do not overlap. The plate is then incubated, usually at 35-37°C for about 16-18 hours.
- **Measuring Zones of Inhibition**: After incubation, the diameters of the zones of inhibition around each disc are measured. The zone of inhibition is the area around the disc where bacterial growth has been prevented due to the antibiotic (imipenem).
- **Interpretation of Results**: The key to interpreting this test lies in comparing the zone sizes around the two discs. If the zone around the disc with EDTA is larger than the zone around the disc without EDTA by 7 mm or more, it indicates the presence of MBLs. The increased zone size when EDTA is present suggests that the enzyme degrading the imipenem (the MBL) has been inhibited by the EDTA, allowing the imipenem to exert its antibacterial effect over a larger area.

For detection of Amp C:

- Detection of AMP C was performed by placing Cefotaxime and Ceftazidime 30 microgram discs. Detection of AmpC beta-lactamases in bacteria, which are enzymes capable of breaking down a wide range of beta-lactam antibiotics including cephalosporins and penicillin, is critical for determining appropriate antibiotic treatment strategies. One common method for detecting the presence of AmpC beta-lactamases involves the use of antibiotic susceptibility testing discs, particularly with Cefotaxime and Ceftazidime.
- **Preparation of the Bacterial Isolate**: The first step involves the preparation of a pure culture of the bacterial isolate to be tested. This is usually grown on a suitable agar medium to ensure that the bacteria are in the right phase of growth for testing.

- **Application of Antibiotic Discs:** Once the bacterial culture is ready, antibiotic discs impregnated with specific concentrations of antibiotics (in this case, 30 micrograms of Cefotaxime and Ceftazidime) are placed on an agar plate that has been inoculated with the bacterial isolate. Cefotaxime and Ceftazidime are chosen because AmpC enzymes can efficiently hydrolyze these cephalosporins, making them good indicators of AmpC activity.
- **Incubation:** After the discs are placed on the agar plate, the plate is incubated at an appropriate temperature, usually 35-37 degrees Celsius, for about 18-24 hours. During this time, the antibiotic diffuses into the agar and interacts with the bacteria.
- **Observation of Inhibition Zones:** Post-incubation, the growth of bacteria around the antibiotic discs is observed. A clear area where bacterial growth has been inhibited, known as the zone of inhibition, can be seen around each disc. The size of these zones is measured.
- **Interpretation of Results:** The diameters of the inhibition zones are compared against standard values to determine the susceptibility of the bacteria to the antibiotics. For AmpC detection, the focus is on the reduction in the size of inhibition zones. Smaller or no zones of inhibition around Cefotaxime and Ceftazidime suggest the presence of AmpC activity.

Common Drugs used in UTI

ANTIBIOTICS
Cotrimoxazole
Cefpodoxime
Ceftriaxone
Cefixime
Ciprofloxacin
Levofloxacin
Piperacillin Tazobactam
Amikacin
Meropenem
Imipenem-Cilastatin
Fosfomycin
Nitrofurantoin

Results

RESULTS

Table 1: Distribution of study subjects according to age groups

Age (in years)	Frequency	% of Total
0-10	23	6.0 %
11-20	29	7.6 %
21-30	88	22.9 %
31-40	79	20.6 %
41-50	56	14.6 %
51-60	49	12.8 %
61-70	35	9.1 %
71-80	22	5.7 %
81-91	3	0.8 %
Total	384	100.0%
Mean ± SD	39.3 ± 19.1	

χ^2=146, p=<0.001

The above table illustrates that out of the total study participants, 23 individuals aged between 0-10 years accounted for 6.0% of the sample, and 29 participants in the 11-20 year age range represented 7.6%. The age group 21-30 years had the highest representation with 88 individuals, comprising 22.9% of the sample. Those aged 31-40 years made up 20.6% of the

population with 79 participants. The study also included 56 participants aged 41-50 years, contributing to 14.6% of the total. The 51-60 year age group consisted of 49 participants, making up 12.8% of the sample. There were 35 participants aged 61-70 years, accounting for 9.1%, and 22 individuals aged 71-80 years, comprising 5.7% of the total. The oldest age group, 81-91 years, had 3 participants, representing 0.8%. Overall, the total number of participants was 384, with an average age of 39.3 ± 19.1 years.

Table 2: Distribution of study subjects according to Gender

GENDER	Frequency	% of Total
Male	181	47.1 %
Female	203	52.9 %
Total	384	100.0%

χ^2=1.26, p=0.262

The above table illustrates that out of the total study participants, 384 individuals were considered, with a gender distribution of 181 males (47.1%) and 203 females (52.9%).

Table 3: Distribution of cases according to department wise by culture results

DEPARTMENT	CULTURE		TOTAL
	Positive	Negative	
Casualty	21	9	30
ENT	17	8	25
General medicine	44	27	71
General surgery	38	15	53
OBS and GYNAE	38	15	53
Paediatrics	15	7	22
Respiratory medicine	8	10	18
Dermatology Venereology and Leprosy	9	9	18
Urology	22	10	32
Nephrology	21	15	36
Orthopaedic	8	6	14
Total	246 (64.06%)	138 (35.9%)	384 (100.0%)

The above table illustrates that out of the total study participants (384), the Casualty department reported 21 positive and 9 negative results, totaling 30 cases. The ENT department had 17 positive and 8 negative results from a total of 25 cases. In General Medicine, there were 44 positive and 27 negative cases, adding up to 71. General Surgery recorded 38 positive and 15

negative cases, totaling 53, which was identical to the Obs & Gynaec department with 38 positive and 15 negative cases. Paediatrics had 15 positive and 7 negative cases from 22 in total. Respiratory Medicine showed 8 positive and 10 negative results from 18 cases. Dermatology, Venereology, and Leprosy department also had 18 cases, split evenly with 9 positive and 9 negative results. Urology reported 22 positive and 10 negative cases, making a total of 32. Nephrology had 21 positive and 15 negative results out of 36 cases. Orthopaedics reported the least, with 8 positive and 6 negative results from a total of 14 cases. In summary, 246 (64.06%) of the results were positive, and 138 (35.9%) were negative out of all the departments combined.

Table 4: Distribution of study subjects according to site (OPD, IPD) by culture result

Sample Type	Positive	Negative	Total
OPD	100	48	148
IPD	146	90	236
Total	246	138	384

The above table illustrates that out of the total study participants, 384 individuals were assessed, with 246 testing positive and 138 testing negative for the condition under study. Specifically, among the Outpatient Department (OPD) participants, 100 were positive and 48 were negative, totaling 148. In the Inpatient Department (IPD), 146 participants tested positive and 90 tested negative, making a total of 236.

Table 5: Distribution of study subjects according to symptoms

Symptoms	Frequency	% of Total
Fever	75	19.53%
Itching	40	10.41%
Dysuria	64	16.66%
Incontinence	33	8.59%
Abdominal pain	78	20.31%
Frequent urination	85	22.13%
Fever +Frequent urination	9	2.34%

The above table illustrates that out of the total study participants, 75 reported fever, constituting 19.53% of the total; 40 experienced itching, accounting for 10.41%; 64 had dysuria, making up 16.66%; 33 suffered from incontinence, representing 8.59%; 78 experienced abdominal pain, which is 20.31%; 85 reported frequent urination, amounting to 22.13%; and 9 had both fever and frequent urination, making up 2.34%.

Table 6: Distribution of study subjects according microscopy.

	Positive	Negative	Total
Bacteria seen	246	138	384
Pus cells seen	300	84	384
Other abnormalities like crystal, epithelial cells, etc	15	369	384

The above table illustrates that out of the total study participants, 384 individuals were tested for various conditions. Bacteria seen in 246 participants tested positive while 138 tested negative. In the evaluation of pus cells, pus cells seen in 300 and in 84 samples not seen. Regarding the presence of abnormalities, 15 participants showed other abnormalities whereas 369 did not.

Table 7: Distribution of cases according to colony count

Indecisive (10000 – 100000 CFU/ml)	Contaminant (< 10000 CFU/ml)	Significant bacteriuria (>100000 CFU/ml)	Total
57 (14.84%)	81 (21.09%)	246 (64.06%)	384

The above table illustrates that out of 384 samples , 57 (14.84%) were indecisive , 81 (21.09%) were contaminant and 246 (64.06%) were significant bacteriuria

Table 8: Distribution of Isolated organism responsible for hospital associated UTI and community acquired UTI

Organism	Hospital associated UTI	Community acquired UTI	Total
E. coli	5(25%)	84(37.16%)	89(36.17%)
Proteus spp.	2(10%)	30(13.27%)	32(13.0%)
Citrobacter	1(5%)	6(2.6%)	7(2.8%)
Klebsiella spp.	3(15%)	18(7.9%)	21(8.53%)
Enterobacter	2(10%)	27(11.94%)	29(11.78%)
Acinetobacter baumannii	1(5%)	12(5.3%)	13(5.2%)
Pseudomonas aeruginosa	3(15%)	28(12.38%)	31(12.60%)
Streptococcus spp.	1(5%)	12(5.3%)	13(5.28%)
Staphylococcus aureus	2(10%)	9(3.9%)	11(4.47%)
Total	20	226	246(100%)

The above table illustrates that out of the total study participants, E. coli was identified in 89 cases (36.17%), comprising 5 cases (25%) from hospital associated UTI and 84cases (37.16%) from community acquired UTI . Proteus spp. appeared in 32 cases (13%), distributed as 2 cases (10%) in hospital associated UTI and 30 cases (13.27%) in community acquired UTI. Citrobacter was detected in 7 cases (2.8%), including 1 cases (5%) from hospital associated

UTI and 6 cases (2.6%) from community acquired UTI . Klebsiella spp. was noted in 21 cases (8.53%), with 3 cases (15%) hospital associated UTI and 18 cases (7.9%) community acquired UTI . Enterobacter was identified in 29 cases (11.78%), with 2 cases (10%) in hospital associated UTI and 27 cases (11.94%) in community acquired UTI . Acinetobacter baumannii was present in 13 cases (5.2%), consisting of 1 cases (5%) from hospital associated UTI and 12 cases (5.3%) from community acquired UTI. Pseudomonas aeruginosa was found in 31cases (12.60%), with 3cases (15%) in hospital associated UTI and 28 cases (12.38%) in community acquired UTI. Streptococcus spp. was recorded in 13 cases (5.28%), including 1 cases (5%) from hospital associated UTI and 12 cases (5.3%) from community acquired UTI. Staphylococcus was identified in 11 cases (4.47%), with 2 cases (10%) hospital associated UTI and 9 cases (3.9%) community acquired UTI

Table 9: Distribution of isolated organism among symptomatic and asymptomatic patients.

Organism	Symptomatic patients of UTI	Asymptomatic patients of UTI	Total
E. coli	70(36.64%)	19(34.54%)	89(36.17%)
Proteus spp.	22(11.51%)	10(18.18%)	32(13.0%)
Citrobacter	5(2.61%)	2(3.36%)	7(2.84%)
Klebsiella spp.	17(8.90%)	4(7.27%)	21(8.53%)
Enterobacter	22(11.51%)	7(12.72%)	29(11.78%)
Acinetobacter baumannii	8(4.18%)	5(9.09%)	13(5.28%)
Pseudomonas aeruginosa	28(14.65%)	3(5.45%)	31(12.60%)
Streptococcus spp.	11(5.75%)	2(3.63%)	13(5.28%)
Staphylococcus aureus	8(4.18)	3(5.45%)	11(4.47%)
Total	191	55	246(100%)

The above table illustrates that out of the total study participants, 246 individuals were examined for the presence of various organisms, which included symptomatic and asymptomatic patients. Among the organisms, E. coli was identified in 89 participants (36.17%), with 70 symptomatic (36.64%) and 19 asymptomatic (34.54%).. Proteus spp. appeared in 32 participants (13.00%), including 22 symptomatic (11.51%) and 10

asymptomatic (18.18%). Citrobacter was present in 7 participants (2.84%), with 5 symptomatic (2.61%) and 2 asymptomatic (3.36%). Klebsiella spp. was detected in 21 participants (8.53%), including 17 symptomatic (8.90%) and 4 asymptomatic (7.27%). Enterobacter spp. was found in 29 participants (11.78%), with 22 symptomatic (11.51%) and 7 asymptomatic (12.72%). Acinetobacter baumannii was identified in 13 participants (5.28%), comprising 8 symptomatic (4.18%) and 5 asymptomatic (9.09%). Pseudomonas aeruginosa was detected in 31participants (12.60%), including 28 symptomatic (14.65%) and 3 asymptomatic (54.54%). Streptococcus spp. was present in 13 participants (5.28%), with 11 symptomatic (5.75%) and 2 asymptomatic (3.63%). Finally, Staphylococcus aureus was found in 11 participants (4.47%), with 8 symptomatic (4.18%) and 3 asymptomatic (5.45%). Overall, the total symptomatic patients were 191 (100%) and asymptomatic were 55 (100%).

TABLE:10 Antibiotic Susceptibility profile for Gram-Positive Cocci (GPC)

Antibiotic	Sensitive	Intermediate	Resistant
Penicillin G	76%	6%	18%
Ampicillin	74%	14.8%	11.2%
Tigecycline	80%	4.9%	15.1%
Levofloxacin	88%	7%	5%
Erythromycin	51%	10.8%	38.2%
Clindamycin	62%	7%	31%
Vancomycin	100%	0%	0%
Linezolid	100%	0%	0%
Sulfamethoxazole	71%	8.6%	20.4%
Amoxicillin + Clavulanic Acid	50%	45%	15%
Gentamicin	74%	5.9%	20.1%
Nitrofurantoin	76%	10%	14%
Oxacillin	50%	7%	43%

The above table illustrates that out of total study participants, Penicillin G showed a sensitivity of 76%, an intermediate response of 6%, and resistance of 18%. Ampicillin was sensitive in 74% of cases, had an intermediate response in 14.8%, and showed resistance in 11.2%. Tigecycline had a sensitivity of 80%, an intermediate response of 4.9%, and resistance of 15.1%. Levofloxacin demonstrated high sensitivity at 88%, with 7% intermediate responses and 5% resistance. Erythromycin was sensitive in 51% of cases, with an intermediate response of 10.8% and a resistance rate of 38.2%. Clindamycin showed sensitivity in 62% of participants, 7% had an intermediate response, and 31% were resistant. Vancomycin and

Linezolid both had 100% sensitivity with no intermediate responses or resistance. Sulfamethoxazole was sensitive in 71% of cases, had an intermediate response in 8.6%, and resistance in 20.4%. Amoxicillin + Clavulanic Acid showed a 50% sensitivity, 45% intermediate response, and 15% resistance. Gentamicin was sensitive in 74% of cases, had an intermediate response of 5.9%, and a resistance rate of 20.1%. Nitrofurantoin demonstrated sensitivity in 76% of participants, with an intermediate response of 10%, and 14% resistance. Oxacillin showed a sensitivity of 50%, an intermediate response of 7%, and a high resistance rate of 43%.

Table 11: Antibiotic Susceptibility Profile for Gram-Negative bacilli (GNB)

Antibiotic	Sensitive	Intermediate	Resistant
Ampicillin	31.7%	14.3%	54%
Amoxicillin-Clavulanic Acid	43.2%	33.8%	23%
Piperacillin-Tazobactam	64.1%	18.8%	17.1%
Ceftriaxone	65%	17.8%	17.2%
Ceftazidime	69%	29%	2%
Cefepime	42.1%	11.9%	46%
Gentamicin	80.1%	13.9%	6%
Amikacin	94.3%	2.2%	3.5%
Ciprofloxacin	53%	29%	18%
Tigecycline	90%	9%	1%
Nitrofurantoin	28%	39%	33%
Sulfamethoxazole	56.2%	17.8%	26%
Meropenem	97%	0.2%	2.8%
Imipenem	94.2%	2.8%	3%
Levofloxacin	83.1%	4.9%	12%
Tobramycin	78%	19%	3%
Colistin	99.7%	0.3%	0%

The above table illustrates that out of the total study participants, for Ampicillin, 31.7% were sensitive, 14.3% intermediate, and 54% resistant. For Amoxicillin-Clavulanic Acid, sensitivity

was observed in 43.2% of cases, intermediate in 33.8%, and resistance in 23%. Piperacillin-Tazobactam showed 64.1% sensitivity, 18.8% intermediate, and 17.1% resistance. Ceftriaxone had a sensitivity of 65%, 17.8% intermediate, and 17.2% resistance. Ceftazidime results were 69% sensitive, 29% intermediate, and 2% resistant. Cefepime showed 42.1% sensitivity, 11.9% intermediate, and 46% resistance. Gentamicin was found to be sensitive in 80.1% of cases, 13.9% intermediate, and 6% resistant. Amikacin had high sensitivity at 94.3%, with 2.2% intermediate and 3.5% resistant. For Ciprofloxacin, 53% were sensitive, 29% intermediate, and 18% resistant. Tigecycline showed 90% sensitivity, 9% intermediate, and 1% resistance. Nitrofurantoin had 28% sensitivity, 39% intermediate, and 33% resistance. Sulfamethoxazole showed 56.2% sensitivity, 17.8% intermediate, and 26% resistance. Meropenem was highly effective with 97% sensitivity, 0.2% intermediate, and 2.8% resistant. Imipenem showed 94.2% sensitivity, 2.8% intermediate, and 3% resistance. Levofloxacin had 83.1% sensitivity, 4.9% intermediate, and 12% resistance. Tobramycin results were 78% sensitive, 19% intermediate, and 3% resistant. Lastly, Colistin exhibited the highest sensitivity rate at 99.7%, with 0.3% intermediate and no resistance noted.

Table 12: Distribution of study subjects according to resistance Pattern MRSA , ESBL,MBL AmpC by organisms

Susceptibility	Organism				Total
	E.coli	Proteus	Klebsiella	Staphylococcus	
MRSA	0	0	0	8	8
ESBL	24	8	12	0	44
MBL	13	2	0	0	15
Amp C	17	4	5	0	26

The above table illustrates that out of the total study participants, for the organism susceptibility, there were 0 cases of MRSA for E.coli, Proteus, and Klebsiella, but 8 cases in Staphylococcus, totaling 8 MRSA cases. ESBL showed 24 cases in E.coli, 8 in Proteus, 12 in Klebsiella, and 0 in Staphylococcus, summing up to 44 ESBL cases. MBL had 13 cases in E.coli, 2 in Proteus, 0 in Klebsiella, and 0 in Staphylococcus, with a total of 15 MBL cases. Amp C displayed 17 cases in E.coli, 4 in Proteus, 5 in Klebsiella, and 0 in Staphylococcus, totaling 26 Amp C cases.

Discussion

DISCUSSION

The present study is **To determine the profile of community acquired and hospital associated urinary tract infections pathogen and their susceptibility pattern with special reference to MRSA, ESBL,MBLS And AmpCs** done in department of microbiology of SMCH Ghaziabad, In table 1 , majority of UTI cases found in younger Adult , with the highest frequency (22.9%) observed in the 21-30yr age group, followed by the 31-40 yrage group (20.6%). A gradual decline in UTI occurrence was noted as age increased, except for a slight rise in the 51-60 yr age group. The mean age was 39.3 years, with a standard deviation of 19.1, and the chi-square analysis indicated a statistically significant association between age and UTI distribution (χ^2=146, p<0.001). **Khan et al.(2023)** reported similar age-related findings, noting a higher incidence of UTIs in the 21-30yr age group, which aligns with the present study's data. Their study also highlighted that younger adults were more susceptible to UTIs due to lifestyle factors and greater sexual activity, a common contributing factor. **Srivastava et al.(2024)** also found a higher prevalence of UTIs in younger adults, with a peak in the 21-30 yr age range, reinforcing the age-related vulnerability seen in their study. However, they observed a lower incidence in older age groups compared to the slight increase in the 51-60 yr group noted in the present study, suggesting possible regional or demographic differences in susceptibility. These studies corroborate the importance of age as a determinant of UTI risk.

Table 2 ,showed that females constituted a slightly higher proportion of UTI cases (52.9%) compared to males (47.1%). However, the chi-square analysis (χ^2=1.26, p=0.262) revealed no statistically significant association between gender and UTI occurrence, indicating that gender did not play a significant role in the distribution of UTIs in the study population. In contrast, **Sharma et al.(2022)** reported a higher prevalence of UTIs among females, with 65.3% of

cases occurring in females and 34.7% in males, emphasizing the well-known predisposition of females to UTIs due to anatomical factors such as a shorter urethra. This aligns with the present study's observation that females had a higher UTI incidence, although the difference was less pronounced. Similarly, **Rahman et al.(2023)** found that 60% of the UTI cases in their study were female patients, while only 40% were male, further corroborating the tendency for females to be more affected by UTIs. However, unlike the present study, both Sharma and Rahman's studies indicated statistically significant gender differences in UTI occurrence, suggesting that in different regions and populations, gender may play a more substantial role in UTI risk.

Table 3, it was observed that culture report of 64.06% were positive, while 35.9% were negative results. The general medicine department had the highest no. of positive results 44 followed by general surgery and obs and gyne department 38 positive culture result. The study showed lowest cases in department of respiratory medicine and orthopeadics 8 positive culture results.

Table 4 showed that out of 384 total samples, 100 given positive culture results in OPD samples, 146 positive culture results in IPD samples . Lombardi et al.(2012) study reported a slightly higher percentage of positive results from IPD samples, with 86 out of 225 IPD samples testing positive (38.22%), closely aligning with the current study's 38.02% positivity rate for IPD samples. These minor differences may reflect sample size variations or differences in patient demographics.

Table 5 showed that the most common symptom among individuals with urinary tract infections (UTIs) was frequent urination 85 (22.13%), followed by abdominal pain 78 (20.3%) and fever 75 (19.5%) . Dysuria was reported in 64(16.7%) of cases, while itching, incontinence and fever with frequent urination were less common, affecting 40 (10.4%,), 33(8.6%)and 9 (2.3%) of the population, respectively. **Alshaikh et al. (2024)** reported that fever was the most

common symptom among UTI patients in their Egyptian hospital-based study, observed in 30% of the sample. Frequent urination, which was the predominant symptom in the present study, was less frequent in their sample at 18%.

Table 6 showed that out of a total of 384 samples, bacteria were detected in 246 samples, while in 138 samples no bacteria detected. Pus cells seen in 300 samples and absent in the remaining 84 and other abnormalties like crystal, epithelial cells etc was observed in 15 samples

Table 7 showed the colony count ,categorized into three groups: indecisive, contaminant, and significant bacteriuria. Out of 384 samples, 246 (66.06%)showed significant bacteriuria, 81(21.09%) showed contaminant and 57 (14.84%) indecisive.

Table 8 showed that 226 (91.8%) of the infections were community acquired UTI while 20 (8.1%) were hospital associated UTI . Out of 20 samples , 13 were non catheter associated UTI cases and 7 were catheter associated UTI (CAUTI) cases *E. coli* was the most commonly isolated organism, accounting for 5 cases (25%) of hospital associated UTI and 84cases (37.16%) of community acquired UTI. Proteus spp. were 2ND most common, 2 cases (10%) in hospital associated UTI and 30 cases (13.27%) in community acquired UTI. Other frequently identified organisms included *Pseudomonas aeruginosa 31(12.60*%) , 28 cases (12.38%) in community-acquired UTI and 3 cases (15%) in hospital associated UTI . The chi-square analysis revealed no statistically significant association between the source of infection and the organism type. In comparison, ***Saleem et al.2023*** reported higher rates of hospital-acquired infections in *E. coli* (20%) and *Klebsiella* (15%), showing a more pronounced distinction between hospital and community acquired infections in their sample. Their findings contrast with the present study's data, where *E. coli* and *Klebsiella* were more prevalent in community-acquired cases. Furthermore, ***Pariyar et al.*** **(2023)** found that 30% of their hospital-acquired infections were due to *Klebsiella*, which is higher than the 5.21% observed in the current study.

In table 9 the present study shows the distribution of symptomatic and asymptomatic patients based on the isolated organisms. E. coli was the most common organism, found in 89 cases, with 70 (36.64%) being symptomatic and 19(34.54%) asymptomatic. Proteus spp. was identified in 32 cases, including 22(11.51%) symptomatic and 10(18.18%) asymptomatic patients. Citrobacter was present in 7 cases, of which 5(2.61%) were symptomatic and 2(3.36%) were asymptomatic. Klebsiella Pneumoniae showed 17(8.90%) symptomatic and 4(7.27%) asymptomatic cases out of a total of 21. Enterobacter was seen in 29 patients, 22 (11.51%) symptomatic and 7 (12.72%) asymptomatic. Acinetobacter baumanii was detected in 13 patient ,8(4.18%) symptomatic patients and 5(9.09%) in asymptomatic patients , while Pseudomonas aeruginosa had 28(14.65%) symptomatic and 3 (54.54%) asymptomatic case. Streptococcus spp. was observed in 13 cases, with 11 (5.75%) symptomatic and 2 (3.63%) asymptomatic. Staphylococcus aureus was in 11 cases , 8(4.18%) were symptomatic and 3(5.45%) were asymptomatic. Khan et al. (2023) reported that E. coli was the predominant organism, accounting for 35% of UTI cases, a slightly higher prevalence than the 28.91% found in the present study. Similarly, Proteus and Klebsiella were also common pathogens in their study, though Proteus was responsible for 20% of UTI cases

Table 10, showed that total no. gram positive cocci isolated were 24. Out of which 1I were staphylococcus Aureus and 13 were streptococcus spp. Out of 11 isolate of Staphylococcus aureus, 8 were MRSA, 3 were MSSA. Out of 13 streptococcus sp., 10 were Enterococcus faecalis and 3 were streptococcus agalactiae. Antibiotic susceptibility profile of gram positive cocci ,Penicillin G showed a sensitivity of 76%, an intermediate response of 6%, and resistance of 18%. Ampicillin was sensitive in 74% of cases, had an intermediate response in 14.8%, and showed resistance in 11.2%. Tigecycline had a sensitivity of 80%, an intermediate response of 4.9%, and resistance of 15.1%. Levofloxacin demonstrated high sensitivity at 88%, with 7% intermediate responses and 5% resistance. Erythromycin was sensitive in 51% of cases, with an intermediate response of 10.8% and a resistance rate of 38.2%. Clindamycin showed sensitivity in 62% of participants, 7% had an intermediate response, and 31% were resistant. Vancomycin and Linezolid both had 100% sensitivity with no intermediate responses or resistance. Sulfamethoxazole was sensitive in 71% of cases, had an intermediate response in 8.6%, and resistance in 20.4%. Amoxicillin + Clavulanic Acid showed a 50% sensitivity, 45% intermediate response, and 15% resistance. Gentamicin was sensitive in 74% of cases, had an intermediate response of 5.9%, and a resistance rate of 20.1%. Nitrofurantoin demonstrated

sensitivity in 76% of participants, with an intermediate response of 10%, and 14% resistance. Oxacillin showed a sensitivity of 50%, an intermediate response of 7%, and a high resistance rate of 43%.

Table 11, we found total no. of gram negative cocci isolated were 207, out of which E.coli were 89, Proteus were 32, Citrobacter were 7, Klebsiella were 21, Enterobacter were 29, Acinetobacter were 13 and Pseudomanas aeruginosa were 31. Antibiotic susceptibility profile of gram negative bacilli, Ampicillin, 31.7% were sensitive, 14.3% intermediate, and 54% resistant. For Amoxicillin-Clavulanic Acid, sensitivity was observed in 43.2% of cases, intermediate in 33.8%, and resistance in 23%. Piperacillin-Tazobactam showed 64.1% sensitivity, 18.8% intermediate, and 17.1% resistance. Ceftriaxone had a sensitivity of 65%, 17.8% intermediate, and 17.2% resistance. Ceftazidime results were 69% sensitive, 29% intermediate, and 2% resistant. Cefepime showed 42.1% sensitivity, 11.9% intermediate, and 46% resistance. Gentamicin was found to be sensitive in 80.1% of cases, 13.9% intermediate, and 6% resistant. Amikacin had high sensitivity at 94.3%, with 2.2% intermediate and 3.5% resistant. For Ciprofloxacin, 53% were sensitive, 29% intermediate, and 18% resistant. Tigecycline showed 90% sensitivity, 9% intermediate, and 1% resistance. Nitrofurantoin had 28% sensitivity, 39% intermediate, and 33% resistance. Sulfamethoxazole showed 56.2% sensitivity, 17.8% intermediate, and 26% resistance. Meropenem was highly effective with 97% sensitivity, 0.2% intermediate, and 2.8% resistant. Imipenem showed 94.2% sensitivity, 2.8% intermediate, and 3% resistance. Levofloxacin had 83.1% sensitivity, 4.9% intermediate, and 12% resistance. Tobramycin results were 78% sensitive, 19% intermediate, and 3% resistant. Lastly, Colistin exhibited the highest sensitivity rate at 99.7%, with 0.3% intermediate and no resistance noted.

Table 12 shows the distribution of study subjects according to resistance patterns (MRSA, ESBL, MBL, and AmpC) across different organisms. In this study, MRSA resistance was observed only in 8 cases of *Staphylococcus Aureus*. ESBL production was found in 44 isolates, with *E. coli* being the most common (24), followed by *Klebsiella* (12) and *Proteus* spp.(8). MBL resistance was observed in 15 cases, predominantly in *E. coli* (13) and *Proteus* spp.(2). AmpC resistance was seen in 17 cases, *E. coli*(17), *Klebsiella pneumoniae (5)*, and *Proteus*

spp.(4). This highlights the significant presence of multidrug-resistant strains among these organisms.

Summary

SUMMARY

1. The present study aims To determine the profile of community-acquired and hospital-acquired UTI pathogens and their susceptibility pattern with special reference to MRSA, ESBL, MBLs and AmpC. It was conducted in the Department of Microbiology, SMCH, Ghaziabad, duration of 12 month ,It is a cross-sectional study.
2. 384 patients suspected of UTI were included in the study.
3. 384 samples were collected from IPD & OPD, and these were processed to identify uropathogens by microscopy, culture, and biochemical tests, followed by testing for antibiotic susceptibility done by Kirby bauer disc diffusion method. All process done as per recommended guidelines.
4. The most common age group affected is 21- 30 yrs (22.9%).
5. Females were the most common 52.9%
6. The maximum number of cases belonged to the General Medicine Department followed by the General surgery and Obstetrics & Gynecology Departments.
7. Out of 384 samples, 148 samples from OPD and 236 samples from IPD.100 samples were found positive from OPD cases and 146 were found positive from IPD cases.
8. The most common symptom were increased frequency of urination 85, followed by abdominal pain 78 and fever 75 cases.
9. Out of 384 samples, bacteria detected in 246 sample in microscopy and in 300 sample pus cells seen .
10. Out of 384 sample,246 cases showed significant bacteriuria, Contaminants were detected in 81 samples and indecisive were detected in 57 samples.
11. Out of 246 samples, 20 cases were hospital-acquired UTI and 226 cases were community-acquired UTI. Out of 20 samples , 13 were non catheter associated UTI cases and 7 were

catheter associated UTI (CAUTI) cases E.coli were most common organism causing UTI in both

12. Out of 246 samples, 191 cases were symptomatic patients and 55 cases were asymptomatic patients.
13. The most sensitive drugs for the Gram positive cocci were Vancomycin and Linezolid 100% effectiveness, followed by levofloxacin (88%) ,Tigecycline (80%), Peniccillin G (76%)Nitrofurantoin (76%) , and Ampicillin (74%).
14. The most sensitive drugs for Gram-negative bacilli were: Colistin (99.7%), followed by Meropenem (97%), Imipenem (94.2%), Amikacin (94.3%),Tigecycline (90%), Levofloxacin (83.1%),Gentamicin 80.1%, Tobramycin 78%.
15. In the present study MRSA ,were 8 cases, ESBL were 44 cases, MBL were 15 cases, and AmpC were 26 cases.

Conclusion

CONCLUSION

- The study showed that antibiotics such as Erythromycin, clindamycin, sulfamethoxazole, and gentamicin are not effective antibiotics for uropathogens belonging to Gram-positive cocci.
- Antibiotics like ampicillin, cefepime, sulfamethoxazole, amoxicillin-clavulanic acid, piperacillin-tazobactam were not effective for uropathogens belonging to Gram-negative bacilli.
- The MRSA, ESBL, MBL, and AmpC were higher in the isolated organisms belonging to Gram-positive cocci and Gram-negative bacilli both.
- The antimicrobial susceptibility testing profile shows the drug of choice for treatment of UTI so patients can be treated properly well in time and also effectively in most affordable cases.

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Annexure

CLNICAL PROFROMA

Name of the Patient:

Age:

Gender:

Occupation:

Chief Complaints and duration of the illness:

History of Present illness:

1. History of fever
2. History of pain abdomen
3. History of urinary incontinence
4. History of frequent urination
5. History of dysuria

Past history:

Family history:

Treatment history:

General Examination:

CLINICAL DIAGNOSIS

CONSENT FORM (ENGLISH)

I_____ age_____ sex_____ give my full free and valid consent to be subject in the study titled **"TO DETERMINE THE PROFILE OF COMMUNITY ACQUIRED AND HOSPITAL ASSOCIATED URINARY TRACT INFECTIONS PATHOGEN AND THEIR SUSCEPTIBILITY PATTERN WITH SPECIAL REFERENCE TO MRSA, ESBL, MBLS AND AmpCs"** I have been informed to my full satisfaction by Dr _____ about the purpose, nature and various laboratory investigations for the study to be carried out. I have been informed about the duration of study and instructions to be followed during study period. I realize that this is being done for the sake of knowing the antibiotic susceptibility pattern of isolated organism. This can prevent us from taking any wrong therapeutic decision based on antibiotic resistant pattern for various organism under study in UTI cases. I am aware of my right to opt out of study at any time during the course of study.

Date:

Patient/patient's relative's

Place:
Signature or Thumb Impression

Name:

Signature of treating physician

Date:

Place:

Name:

Signature of witness:

सहमति पत्र

दिनांक–

मैं ..... उम्र ..... निवासी .... घोषणा करता/करती हूँ कि मैं थीसिस अध्ययन में भाग लेने के लिए अपनी सहमति देता/देती हूँ , जिसका शीर्षक है **"एमआरएसए, ईएसबीएल, एमबीएलएस और एएमपीसी के विशेष संदर्भ के साथ सामुदायिक अधिग्रहित और अस्पताल से जुड़े मूत्र पथ के संक्रमण के रोगजनक और उनकी संवेदनशीलता पैटर्न की रूपरेखा निर्धारित करना"** मैंनें रोगी सूचना पत्र और इसके बारे में सारे प्रश्नों को अच्छी तरह पढ़ लिया है। इस अध्ययन का डाटा इस शर्त पर है कि मेरे सभी विवरण गोपनीय रखे जाने हैं।

मैं संतोष अस्पताल, गाजियाबाद उ0प्र0 में अपने आगे के इलाज का का अधिकारी तथा जब भी मैं जाना चाहता/चाहती हूँ या अध्ययन से अपने हटने के अधिकार को सुरक्षित रखता हूँ।

मरीज के हस्ताक्षर नाम

रिश्तेदार के हस्ताक्षर नाम

गवाह के हस्ताक्षर नाम

डाक्टर के हस्ताक्षर नाम

तिथि –

ETHICAL CLEARANCE

SANTOSH
Deemed to be University
(Established u/s 3 of the UGC Act, 1956)

F. No. SU/R/2023/2489[20] Dated: 26.09.2023

Subject: Grant of Ethical Clearance for **Thesis Protocol** Topic **"TO DETERMINE THE PROFILE OF COMMUNITY ACQUIRED AND HOSPITAL ASSOCIATED URINARY TRACT INFECTIONS PATHOGEN AND THEIR SUSCEPTIBILITY PATTERN WITH SPECIAL REFERENCE TO MRSA , ESBL,MBLs AND AmpCs"**, submitted by **Dr. MEET GUPTA,** MD/MS student of Batch 2022-2023, Department of **MICROBIOLOGY**.

*****

With reference to his/her request for grant of Ethical Clearance for the Thesis Protocol entitled **"TO DETERMINE THE PROFILE OF COMMUNITY ACQUIRED AND HOSPITAL ASSOCIATED URINARY TRACT INFECTIONS PATHOGEN AND THEIR SUSCEPTIBILITY PATTERN WITH SPECIAL REFERENCE TO MRSA , ESBL,MBLs AND AmpCs"**, **Dr. MEET GUPTA** is informed that the **Thesis Protocol** submitted by him/her was considered by the **Screening Committee** of the Santosh Medical College & Hospital in its meetings held on 17.07.2023 to 28.07.2023. The recommendations of the **Screening Committee** were considered in detail by the **Institutional Ethics Committee** in its meeting held on **23.09.2023** and the same was **approved** by the **Ethics Committee**.

He /She is informed accordingly for further necessary action.

[Dr. NARESH SHARMA]
REGISTRAR

Dr. MEET GUPTA
MD/MS student of batch 2022-2023
Department of MICROBIOLOGY
Email: meet12345gpt@gmail.com

Copy to:

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2. The Dean, SMC&H
3. The Dean – Academics
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6. Dr. Geeta Gupta (Guide)
7. HOD of MICROBIOLOGY

DISSERTATION WORKSHOP CERTIFICATE

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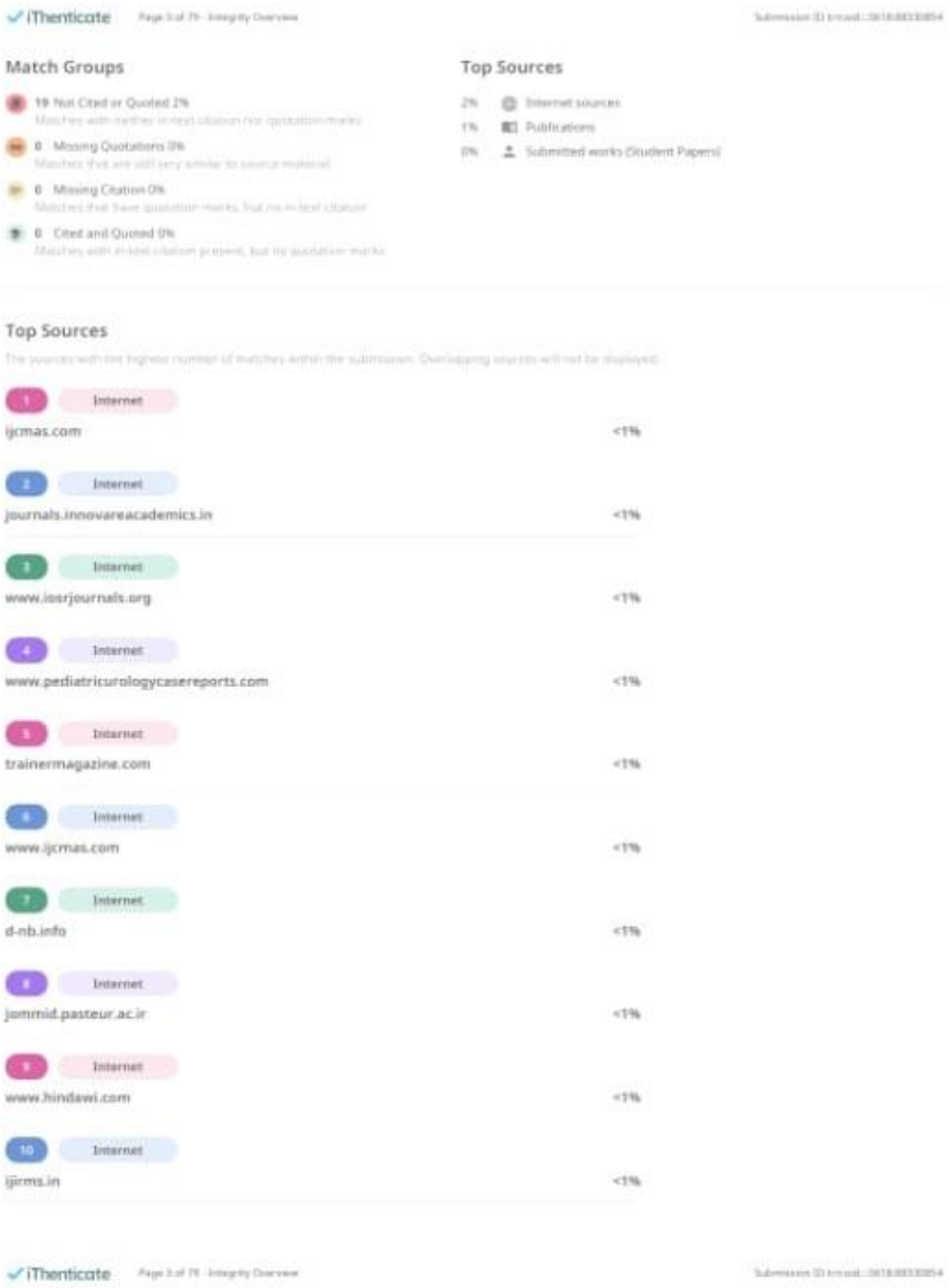

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UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
2024030605	MR. VISHA	22	M	GENERAL MEI	OPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,CRO,PiP/TZ,SMZ,CIP ,TG,GM I-TOB,AP,F R-LEV,AMC,FEP	No	Yes	No	No
2024030605	MR. SURE	60	M	GENERAL MEI	IPD	Frequent urination	no microorganism seen						
2024030605	MRS. GEE	38	F	GENERAL MEI	IPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,PiP/TZ,AP ,TG,GM I-TOB,SMZ,AMC,F R-CRO,CIP,FEP,LEV	No	yes	Yes	No
2024022107	MR. RADH	72	M	GENERAL MEI	IPD	Fever	no microorganism seen						
2024030600	MRS. SHA	75	F	CASUALTY	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,AK,PiP/TZ,CL,CRO,SMZ,CIP,TG,LEV,TOB I-CAZ,AP,F R-GM,AMC,FEP	No	No	No	No
2024030600	BABY OF I	1	M	CASUALTY	IPD	Incontinence	GNB seen	PSEudomonas	S-MEM,IMP,AK,CL,CAZ,SMZ,CIP ,TOB,LEV,GM,TG I-CRO,AP.F R-PiP/TZ,AMC,FEP				
2024030600	MRS. SHA	36	F	GENERAL MEI	IPD	Abdominal pain	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,CRO,PiP/TZ,SMS,CIP ,GM,TG I-TOB,AMC,AP,F R-LEV,FEP	No	Yes	No	No
2024030600	MRS. PREI	31	F	GENERAL MEI	IPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,CIP,AP,LEV,TG,TOB,GM I-CRO,SMZ,AMC,F R-PiP/TZ,FEP	No	No	No	No
2024030600	MRS. TINA	20	F	GENERAL MEI	IPD	Frequent urination	GPC seen	Streptococcus	S-VAN,LzD,LEV,PenG,AP,OX,F I-AP,SMZ,AMC,,GM R-TG,CLI	No	no	No	No
2024020106	MRS. ALK	23	F	GENERAL MEI	IPD	Fever	no microorganism seen						
2024030605	MR. MASH	69	M	GENERAL SUR	IPD	Frequent urination	GNB seen	Proteus	S-MEM,IMP,AK,PiP/TZ,CL,SMZ,CIP,TG,GM,TOB I-LEV,CAZ,AMC,F R-CRO,FEP,AP	No	Yes	No	Yes
2024022606	MRS. SARI	32	F	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
2023121800	MRS. GEE	65	F	ENT	IPD	Frequent urination	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ ,F I-AMC,TG R-CLI,GM,AP,PenG,OX	No	No	No	No
2024030600	MRS. SADI	45	F	OBS AND GYN	IPD	Itching	no microorganism seen						
2024030600	MASTER G	3	M	CASUALTY	OPD	Abdominal pain	GNB seen	E.coli	S-IMP,MEM,AK,CAZ,CL,PiP/TZ,SMZ,FEP,TG,TOB,LEV I-CRO,AP,F R-GM,CIP,AMC	No	No	No	No
2024030600	MRS. POO	21	F	ENT	IPD	Abdominal pain	GNB seen	Proteus	S-IMP,MEM,AK,CAZ,CL,PiP/TZ,CIP,FEP,LEV,GM,TG I-TOB,SMZ,F R-CRO,AMC,AP	No	Yes	No	No
2024030605	MR. ASHIS	26	M	ENT	IPD	Incontinence	GNB seen	E.coli	S-MEM,IMP,AK,FEP,CL,PiP/TZ,SMZ,GM,TOB,TG,GM I-LEV,CAZ,AMC,F R-CRO,CIP,AP	No	No	No	No
2024013105	MRS. FARZ	25	F	UROLOGY	OPD	Incontinence	GNB seen	Proteus	S-AK,MEM,IMP,CAZ,CL,CIP,FEP,LEV,GM,TOB,TG I-CRO,SMZ,AMC,F R-PiP/TZ,AP	No	No	No	No
2024020502	MRS. SUN	34	F	UROLOGY	OPD	Fever	GNB seen	E.coli	S-CAZ,MEM,IMP,SMZ,CIP,FEP,LEV,TG,TOB,GM I-AK,PiP/TZ,F R-CRO,AMC,AP	No	Yes	No	No
2024030600	MR. AAMI	18	M	GENERAL MEI	IPD	Dysuria	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	Yes	No	No	No
2024030600	MRS. UMA	50	F	GENERAL MEI	IPD	Frequent urination	no microorganism seen						
2024030600	MR. PRAM	65	M	GENERAL MEI	OPD	Fever	no microorganism seen						
2024030600	MRS. REK	31	F	GENERAL MEI	IPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,PiP/TZ,SMZ,CIP,LEV,GM,TG I-TOB,AMC,F R-CRO,FEP,AP	No	No	No	Yes
2024030605	MR. AVDE	24	M	GENERAL MEI	IPD	Incontinence	GNB seen	E.coli	S-CAZ.AK,MEM,IMP,CL,PiP/TZ,SMZ,TG,LEV,TOB I-CRO,AP R-GM,CIP,AMC,FEP,F	No	Yes	No	No
2024011905	MRS. VIDI	60	F	GENERAL MEI	IPD	Frequent urination	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ, PenG,AP,GM,F I-AMC R-OX,TG,CLI	No	No	No	Yes
2024030605	MR. NIKHI	23	M	GENERAL MEI	IPD	Dysuria	GNB seen	Proteus	S-CIP.MEM,IMP,AK,CRO,CL,APTG,GM,TOB I-LEV,CAZ,SMZ,AMC R-PiP/TZ,FEP,F	No	Yes	No	No
2024030600	MR. NOOR	36	M	GENERAL SUR	IPD	Itching	GNB seen	E.coli	S-AP,AK,CAZ,MEM,IMP,CL,PiP/TZ,LEV,GM,TG I-TOB,SMZ,F R-CRO,CIP,AMC,FEP	No	No	No	No
2024030600	MR. SINGH	23	M	GENERAL SUR	IPD	Incontinence	no microorganism seen						
2024021607	MR. VIKAS	19	M	GENERAL SUR	IPD	Abdominal pain	GNB seen	Psuedomonas	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,LEV,GM,TG,TOB I-CAZ,AMC,F R-CRO,CIP,FEP,AP	No	No	Yes	No
2024030600	MRS. PINK	35	F	GENERAL SUR	IPD	Fever	no microorganism seen						
2024030600	MRS. RUB	91	F	GENERAL SUR	OPD	Frequent urination	GNB seen	E.coli	S-IMP,AK,MEM,CAZ,CL,CRO,SMZ,CIP,FEP,F,GM,TG,LEV I-TOB,AMC R-PiP/TZ,AP,F	No	No	No	No
2024030600	MRS. JAYA	71	F	ENT	OPD	Fever	GNB seen	Proteus	S-AK,MEM,IMP,CAZ,CL,CRO,CIP,FEP,GM,TG,TOB I-LEV,SMZ,AMC,F R-PiP/TZ,AP	No	No	No	Yes
2024030603	MRS. SUSI	72	F	UROLOGY	OPD	Itching	no microorganism seen						
2024030605	MRS. GEE	58	F	NEPHROLOGY	IPD	Incontinence	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	Yes	No	No	No
2023122803	MRS. ARTI	29	F	OBS & GYNAE	OPD	Abdominal pain	GNB seen	Psuedomonas	S-MEM,IMP,AK,CAZ,CL,PiP/TZ,SMZ,FEP,LEV,TG,TOB I-CRO,AP,F R-GM,CIP,AMC,AP	No	No	No	No
2024030400	MRS. JYOT	27	F	OBS & GYNAE	OPD	Frequent urination	GNB seen	E.coli	S-IMP,MEM,AK,CAZ,CL,CIP,AP,TG,GM,LEV,TOB I-CRO,SMZ,AMC,F R-PiP/TZ,FEP	No	No	No	No
2024021406	MISS PAY	21	F	OBS & GYNAE	IPD	Itching	no microorganism seen						
2024030600	MRS. GUL	25	F	OBS & GYNAE	IPD	Fever	GNB seen	E.coli	S-AK,MEM,IMP,CL,CIP,AP,GM,TG,LEV ,PiP/TZ I-TOB,CAZ,SMZ,F R-CRO,AMC,FEP	No	Yes	No	No
2024030400	MR. RAGH	57	M	GENERAL MEI	IPD	Frequent urination	GPC seen	Streptococcus	S-S-VAN,LzD,LEV, SMZ ,AP,TG,GM,CLI I-F,PenG R-OX,AMC	No	No	No	Yes
2024030400	MR. KALU	70	M	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
2024030600	MRS. REN	35	F	GENERAL MEI	IPD	Abdominal pain	no microorganism seen						
2024021900	MRS. MUN	70	F	ENT	IPD	Itching	GNB seen	Enterobacter	S-MEM,AK,IMP,CAZ,CL,SMZ,CIP,FEP,LEV,TOB,TG,GM I-CRO,AMC R-PiP/TZ,AP,F	No	No	No	No
2024030608	BABY ANJ	9	F	PAEDIATRICS	OPD	Fever	GNB seen	PSEudomonas	S-CAZ,MEM,AK,CL,CRO,SMZ,F,LEV,GM,TG,TOB, I-IMP,PiP/TZ,AMC R-CIP,FEP,AP				
2024030608	MASTER B	2	M	PAEDIATRICS	OPD	Dysuria	GNB seen	klebsiella	S-IMP,AK,MEM,CAZ,CIP,CL,CRO,PiP/TZ,SMZ,LEV,TG I-TOB,AP,F R-GM,AMC,FEP	No	Yes	No	No
2024030608	BABY PRA	4	F	PAEDIATRICS	IPD	Dysuria	no microorganism seen						
2024030608	MASTER D	4	M	PAEDIATRICS	IPD	Abdominal pain	no microorganism seen						
2024030605	MR. RAJU	49	M	PAEDIATRICS	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,AK,PiP/TZ,CL,SMZ,CIP,FEP,LEV,TG,GM,TOB I-CAZ,AP R-CRO,AMC,FEP	No	No	No	No
2024030605	MR. RAVI	47	M	PAEDIATRICS	OPD	Abdominal pain	GPC seen	Staphylococcus	S-VAN,LzD,LEV, F I-SMZ ,AMC,TG R-PenG,OX,CLI,GM,AP	yes	No	No	No
2024013105	MASTER A	14	M	PAEDIATRICS	IPD	Itching	GNB seen	Enterobacter	S-IMP.AK,CAZ,CL,CRO,CIP,FEP,LEV,TG,GM,TOB I-MEM,SMZ,AMC,F R-PiP/TZ,AP	No	Yes	No	Yes
2024030600	MR. MUKE	72	M	RESPIRATORY	IPD	Fever	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,CRO,PiP/TZ,SMZ,CIP,LEV,TG I-TOB,AP R-GM,AMC,F,FEP	No	No	No	No

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
2024030600	MRS. REEN	41	F	RESPIRATORY	IPD	Fever and frequent urinat	GNB seen	Proteus	S-AK,CAZ,MEM,IMP,CL,SMZ,LEV,GM,TG,TOB I-CRO,PiP/TZ,AMC R-CIP,FEP,AP,F	No	Yes	No	No
2024030600	MR. AKHL	22	M	RESPIRATORY	OPD	Abdominal pain	GNB seen	E.coli	S-AK,MEM,IMP,CL,PiP/TZ,SMZLEV,GM,TG,TOB I-CAZ,AMC,F R-CRO,CIP,FEP,AP	No	No	No	No
2024030608	MRS. RUK	78	F	RESPIRATORY	IPD	Abdominal pain	GNB seen	E.coli	S-MEM,AK,CAZ,CL,PiP/TZ,SMZ,CIP,TG,GM,TOB I-CRO,AMC,F R-LEV,IMP,FEP,AP	no	Yes	No	No
2024030608	MR. KANH	42	M	RESPIRATORY	IPD	Itching	GNB seen	Enterobacter	S-MEM,IMP,CAZ,CL,PiP/TZ,SMZ,FEP,LEV,TG,GM,TOB I-CRO,AMC,F R-AK,CIP,AP	no	no	no	no
2024030609	MR. ARUN	34	M	RESPIRATORY	OPD	Dysuria	no microorganism seen						
2024030600	MASTER I	16	M	Dermatology Ve	OPD	Incontinence	GNB seen	Psuedomonas	S-MEM,IMP,AK,CRO,CL,PiP/TZ,SMZ,CIP,F,TG,TOB I-LEV,CAZ,AMC,AP R-GM,FEP	No	No	No	No
2024030600	MR. NOOR	45	M	Dermatology Ve	IPD	Abdominal pain	GNB seen	Proteus	S-IMP,AK,CAZ,CL,SMZAMC,F,GM,TG,TOB,LEV I-MEM,CRO,AP R-PiP/TZ,CIP,FEP	No	No	No	No
2024030600	MRS. ASH	48	F	Dermatology Ve	IPD	Itching	no microorganism seen						
2024030601	MR. DEEN	61	M	Dermatology Ve	IPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,F,LEV,GM,TOB,TG I-AK,CAZ,AMC,AP R-CRO,CIP,FEP	No	Yes	No	No
2024030603	BABY AN	5	F	UROLOGY	OPD	Incontinence	GNB seen	Proteus	S-MEM,IMP,AK,F,CL,PiP/TZ,SMZ,CIP,AMC,LEV,TG,TOB I-GM,CAZ,AP R-CRO,FEP	No	Yes	Yes	No
2024030300	MR. RAM	70	M	UROLOGY	OPD	Frequent urination	no microorganism seen						
2024021601	MR. ANUJ	28	M	UROLOGY	IPD	Abdominal pain	GNB seen	E.coli	S-AK,CRO,CL,MEM,IMP,F,SMZ,CIP,AMC,LEV,GM,TG I-TOB,CAZ,FEP R-PiP/TZ,AP	No	Yes	No	Yes
2024030605	MR. SHER	42	M	UROLOGY	IPD	Abdominal pain	no microorganism seen						
2024030605	MISS AMA	23	F	UROLOGY	IPD	Fever	GNB seen	Proteus	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,F,LEV,TOB,TG I-CAZ,CRO,AMC R-GM,CIP,FEP,AP	No	No	No	No
2024022101	MR. VISHA	13	M	UROLOGY	OPD	Frequent urination	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG,GM R-PenG,OX,CLI,AP	No	No	No	No
2024030605	MRS. GEE	38	F	NEPHROLOGY	OPD	Itching	GNB seen	Acinetobacter	S-AK,MEM,CRO,CL,SMZ,F,LEV,TG,GM,TOB I-IMP,CAZ,AMC R-PiP/TZ,CIP,FEP,AP	no	No	No	No
2023050400	MRS. MAD	60	F	NEPHROLOGY	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,AK,CAZ,CL,PiP/TZ,CIP,LEV,TOB,TG,GM I-CRO,AMC,FEP R-SMZ,AP,F	no	Yes	No	No
2024040206	MRS. RAJE	42	F	GENERAL MEI	IPD	Abdominal pain	GNB seen	E.coli	S-IMP,MEM,AK,CL,PiP/TZ,SMZ,FEP,TG,LEV I-TOB,CRO,AMC R-GM,CAZ,AP,F	no	No	No	No
2024040409	MR. SAJID	39	M	GENERAL MEI	IPD	Dysuria	no microorganism seen						
2024040110	MR. PUSH	33	M	GENERAL MEI	OPD	fever and frequent urinati	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	yes	No	No	No
2024040409	MASTER V	12	M	GENERAL MEI	IPD	Itching	GNB seen	Proteus	S-MEM,IMP,AK,FEP,CL,PiP/TZ,SMZ,AMC,LEV,TG,GM,TOB I-CAZ,AP R-CRO,F	No	No	No	No
2024040400	MR. BABU	60	M	CASUALTY	OPD	Frequent urination	GNB seen	Psuedomonas	S-CRO,CAZ,MEM,IMP,AK,CL,AMC,FEP,LEV,GM,TG I-TOB,SMZ R-PiP/TZ,F,AP	No	Yes	No	No
2024040400	MRS. SON	29	F	CASUALTY	IPD	Fever	GNB seen	E.coli	S-MEM,AK,CL,CAZ,PiP/TZ,FEP,F,LEV,TG,GM I-TOB,AMC,SMZ R-CRO,IMP,AP	No	Yes	No	Yes
2024040400	MRS. NISH	27	F	CASUALTY	OPD	Incontinence	GNB seen	E.coli	S-AK,IMP,MEM,CL,CRO,PiP/TZ,SMZ,FEP,F,LEV,TG,TOB I-CAZ,AMC R-GM,CIP,AP	No	No	No	No
2024040400	MRS. REN	26	F	CASUALTY	OPD	Frequent urination	GNB seen	Enterobacter	S-CAZ,PiP/TZ,MEM,IMP.CL,AK,FEP,AP,F, LEV,TG,GM I-TOB,CRO,AMC R-SMZ,CIP	No	No	No	Yes
2024040400	MRS. SON	26	F	CASUALTY	IPD	Abdominal pain	GNB seen	Proteus	S-MEM,IMP,CL,AK,PiP/TZ,CIP,FEP,AP,LEV,TG,GM,TOB I-CAZ,SMZ,AMC R-CRO,F	No	Yes	Yes	No
2024040400	MRS. LALI	28	F	CASUALTY	OPD	Dysuria	no microorganism seen						
2024040400	MR. MOMI	17	M	CASUALTY	IPD	Abdominal pain	GNB seen	Acinetobacter	S-MEM,AK,CRO,CL,PiP/TZ,FEP,SMZ,CIP,LEV,GM,TG,TOB I-CAZ,AMC R-IMP,AP,F	No	No	No	No
2024040400	MRS. SAHI	72	F	CASUALTY	IPD	Incontinence	GNB seen	E.coli	S-IMP,MEM,CL,AK,CAZ,SMZ,CIP,FEP,GM,TG,TOB I-LEV,CRO,AMC R-PiP/TZ,AP,F	No	Yes	No	Yes
2024040400	MR. RAJEN	74	M	CASUALTY	OPD	Fever	GNB seen	Proteus	S-CAZ,MEM,IMP,AK,CL,CRO,PiP/TZ,SMZ,F,LEV,TG,TOB I-GM,AMC R-CIP,FEP	No	No	No	No
2024040400	MRS. ANN	34	F	CASUALTY	IPD	Frequent urination	no microorganism seen						
2024040400	MR. ISHW	70	M	CASUALTY	IPD	Itching	GNB seen	Enterobacter	S-AP.MEM,IMP,AK,CL,CAZ,PiP/TZ,F,GM,TG,LEV I-TOB,SMZ,AMC R-CRO,CIP,FEP	No	No	No	No
2024040400	MRS. SIMI	68	F	CASUALTY	OPD	fever and frequent urinati	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,AP,GM,CLI,AMC I-SMZ R-OX ,F	No	No	No	No
2024040400	MR. SATY	55	M	CASUALTY	OPD	Dysuria	GNB seen	E.coli	S-CRO,MEM,AK,CL,IMP,SMZ,CIP,F,LEV,TOB,TG,GM I-CAZ,AMC,AP R-PiP/TZ,FEP	No	Yes	No	No
2024040400	MRS. SUN	47	F	CASUALTY	IPD	Dysuria	GNB seen	PSEudomonas	S-IMP,AK,CL,PiP/TZ,SMZ,CIP,AMC,F,LEV,GM,TG,TOB I-CAZ,CRO,AP R-MEM,FEP				
2024040400	MR. RAKA	38	M	CASUALTY	IPD	Abdominal pain	GNB seen	E.coli	S-CRO,IMP,MEM,AK,CL,PiP/TZ,CIP,AMC,FEP,LEV,TG,GM,TOB I-CAZ,AP R-SMZ,F	No	No	Yes	No
2024040400	MASTER C	2	M	GENERAL SUR	IPD	Abdominal pain	GNB seen	Proteus	S-CAZ,CRO,IMP,MEM,CL,AK,SMZ,CIP,FEP,TOB,GM,TG I-LEV , AMC,AP R-PiP/TZ,F	No	No	No	Yes
2024033009	MASTER H	13	M	GENERAL SUR	IPD	Dysuria	no microorganism seen						
2024040108	MASTER J	7	M	GENERAL SUR	IPD	Incontinence	GNB seen	E.coli	S-CRO,CAZ,IMP,MEM,CL,AK,SMZ,CIP,FEP,TG,GM,LEV I-TOB,CAZ R-CIP,F,PiP/TZ	No	No	No	No
2024040400	MRS. LEEI	29	F	GENERAL SUR	IPD	Itching	GNB seen	Proteus	S-SMZ,IMP,MEM,AK,CL,CRO,AMC,FEP,PiP/TZ,LEV,GM,TG I-TOB,SMZ R-CR0,FEP,F	No	Yes	No	No
2024040400	MR. IKBAI	43	M	GENERAL SUR	IPD	Frequent urination	GNB seen	klebsiella	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,CIP,AMC,AP,LEV,GM,TG I-AMC,TOB R-CIP,FEP,F,SMZ	No	No	No	No
2024040401	MRS. KAL	48	F	GENERAL SUR	IPD	Frequent urination	GNB seen	klebsiella	S-CRO,IMP,MEM,AK,CL,PiP/TZ,AP,F,LEV,GM,TG,TOB I-CAZ,SMZ,AMC R-CIP,FEP	No	No	No	No
2024040401	MR. AFSAI	25	M	GENERAL SUR	IPD	Dysuria	GNB seen	Acinetobacter	S-IMP,AK,CL,CRO,PiP/TZ.CIP,AMC,AP,F,LEV,GM,TG,TOB I-CAZ,SMZ,AMC R-MEM,FEP	No	No	No	No
2024040401	MRS. AFSA	30	F	GENERAL MEI	IPD	Abdominal pain	GNB seen	Psuedomonas	S-IMP,CL,MEM,AK,F,SMZ,AP,PiP/TZ,LEV,TOB,GM,TG I-CAZ,AMC R-CRO,CIP,FEP	No	No	No	No
2024040401	MR. MEEN	75	M	GENERAL MEI	IPD	Itching	GNB seen	E.coli	S-CRO,CIP,FEP,AP,MEM,IMP,CL,AKLEV,TG,GM,TOB,LEV I-AMC,SMZ,CAZ R-PiP/TZ,F	No	Yes	Yes	Yes
2024040401	MRS. ROSI	53	F	GENERAL MEI	IPD	Dysuria	GNB seen	klebsiella	S-IMP,AK,CL,CAZ,AMC,CRO,FEP,PiP/TZ,SMZ,CIP,LEV,GM I-TOB,TG R-MEM,AP,F	No	No	No	Yes
2024040401	MR. MANO	71	M	UROLOGY	IPD	Abdominal pain	no microorganism seen						
2024040401	MRS. VEEI	30	F	UROLOGY	IPD	Frequent urination	GNB seen	E.coli	S-CAZ,MEM,IMP,CL,AK,CRO,CIP,F,LEV,TG,GM I-TOB,SMZ,AMC R-PiP/TZ,FEP,AP	No	Yes	Yes	Yes
2024040401	MR. IMRA	26	M	ENT	IPD	fever and frequent urinati	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ,F I-AMC,TG R-PenG,GM,AP,OX,CLI	Yes	No	No	No
2024040401	MRS. LALI	66	F	ENT	IPD	Fever	GNB seen	E.coli	S-SMZ,IMP,MEM,CL,AK,CAZ,PiP/TZ,F,LEV,GM,TG,TOB I-CRO,AMC R-CIP,FEP,AP	No	Yes	No	Yes
2024040401	MR. SHAK	39	M	ENT	IPD	Frequent urination	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,OX,AP,GM,SMZ,AMC I-AP R-CLI,F	No	No	Yes	Yes
2024040401	MRS. CHA	57	F	ENT	IPD	Fever	GNB seen	Proteus	S-AK,IMP,MEM,CL,CRO,PiP/TZ,SMZ,AMC,F,GM,TG I-TOB,CAZ,CIP R-LEV,FEP,AP	No	No	No	No

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
2024040401	MR. JHAG	26	M	ENT	IPD	Abdominal pain	GNB seen	Proteus	S-CAZ,CRO,AMC,AP,F,MEM,IMP,AK,CL,LEV,GM,TOB I-TG,SMZ,CIP R-PiP/TZ,FEP	No	No	No	No
2024040401	MRS. SUM	26	F	ENT	IPD	Frequent urination	no microorganism seen						
2024040402	MR. MAN	24	M	ENT	IPD	Dysuria	GNB seen	Psuedomonas	S-IMP,MEM,CRO,CL,PiP/TZ,SMZ,CIP,AMC,F,LEV,TOB I-GM,CAZ R-AK,TG,FEP,AP	No	No	No	No
2024040402	MRS. KRIS	47	F	ENT	OPD	Dysuria	no microorganism seen						
2024040402	MR. AMIT	21	M	ENT	OPD	Abdominal pain	GNB seen	Proteus	S-MEM,IMP,CL,AK,CRO,SMZ,CIP,AMC,AP,F,GM,LEV,TG I-TOB,CAZ R-PiP/TZ,FEP	No	No	No	Yes
2024031605	MR. MANI	53	M	GENERAL MEI	IPD	Itching	GNB seen	Psuedomonas	S-CAZ,MEM,IMP,CL,AK,CRO,SMZ,CIP,AMC,AP,TG ,LEV I-PiP/TZ,TOB R-GM,FEP,F	No	No	No	No
2024040400	MRS. OMW	89	F	GENERAL MEI	IPD	Abdominal pain	GNB seen	Proteus	S-MEM,IMP,AK,CL,CAZ,CRO,AMC,AP,LEV,GM,TG I-TOB,SMZ,CIP R-PiP/TZ,FEP,F	No	No	Yes	No
2024040400	MR. RAJEN	79	M	GENERAL MEI	IPD	Fever	no microorganism seen						
2024040401	MRS. ANU	43	F	GENERAL MEI	IPD	fever and frequent urinati	GNB seen	klebsiella	S-IMP,MEM,AK,CL,PiP/TZ,SMZ,CRO,AMC,F,TG,GM,TOB I-CAZ,CIP R-LEV,FEP,AP	No	No	No	No
2024040401	MR. AKHT	80	M	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
2024040401	MRS. JAYE	61	F	GENERAL MEI	OPD	Abdominal pain	GNB seen	Acinetobacter	S-CAZ,IMP,MEM,CL,AK,SMZ,CIP,AMC,F,LEV,TG,GM I-TOB,PiP/TZ R-CRO,FEP,AP	No	no	No	No
2024040401	MR. SURE	64	M	GENERAL MEI	IPD	Abdominal pain	no microorganism seen						
2024040401	MRS. AYU	88	F	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
2024040401	MR. SONU	23	M	GENERAL MEI	OPD	Fever	GNB seen	klebsiella	S-CRO,MEM,IMP,CL,AK,PiP/TZ,CIP,AMC,GM,LEV,TOB I-TG,CAZ,FEP R-SMZ,F	No	No	No	No
2024040401	MRS. RAM	21	F	GENERAL MEI	IPD	Abdominal pain	no microorganism seen						
2024040401	MR. EKTA	43	M	GENERAL MEI	OPD	Frequent urination	GNB seen	Psuedomonas	S-MEM,IMP,AK,CL,CAZ,CRO,AMC,AP,LEV,GTG,TOB I-GM,PiP/TZ,CIP R-SMZ,F ,FEP	No	No	No	No
2024040401	MRS. SARI	52	F	GENERAL MEI	IPD	Itching	no microorganism seen						
2024040300	MRS. LEEI	65	F	GENERAL SUR	IPD	Dysuria	GNB seen	klebsiella	S-IMP,AK,MEM,CL,CAZ,AMC,AP,F,LEV,GM,TG I-TOB,SMZ,CIP R-CRO,FEP,AP	No	No	No	No
2024040400	MRS. RINK	23	F	GENERAL SUR	IPD	Dysuria	GNB seen	Acinetobacter	S-IMP,MEM,AK,CL,CRO,SMZ,CIP,AMC,F,LEV,TOB,TG,GM I-CAZ R-PiP/TZ,FEP,AP	No	No	No	Yes
2024040401	MR. SONU	66	M	GENERAL SUR	OPD	Abdominal pain	no microorganism seen						
2024040401	MRS. NAN	23	F	GENERAL SUR	IPD	Abdominal pain	GNB seen	klebsiella	S-MEM,IMP,AK,CL,CRO,SMZ,CIP,AMC,F,GM,TG I-TOB,PiP/TZ R-LEV,FEP,AP,CAZ	No	No	No	No
2024040401	MR. JAIPA	55	M	GENERAL SUR	OPD	Fever	no microorganism seen						
2024040401	MRS. JUBA	36	F	GENERAL SUR	OPD	Abdominal pain	GNB seen	Proteus	S-IMP,CL,MEM,AK,CAZ,CRO,CIP,AMC,FGM,TG,LEV I-TOB,SMZ R-PiP/TZ,AP.FEP	No	Yes	No	Yes
2024040401	MR. IMAM	22	M	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
2024040401	MRS. KAM	41	F	GENERAL SUR	IPD	Dysuria	no microorganism seen						
2024040401	MR. VINOI	32	M	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
2024040401	MRS. HAR	38	F	GENERAL SUR	IPD	Dysuria	GNB seen	klebsiella	S-IMP.MEM,AK,CL,CRO,PiP/TZ,CIP,AMC,F,LEV,GM,TOB I-CAZ,TG R-FEP,AP,SMZ	No	Yes	No	Yes
2024040401	MR. MANI	39	M	GENERAL SUR	OPD	Fever	no microorganism seen						
2024011805	MRS. KAM	49	F	NEPHROLOGY	OPD	Itching	GNB seen	Enterobacter	S-MEM,IMP,AK,CL,SMZ,CIP,AMC,F.LEV,TG ,TOB I-CAZ,PiP/TZ R-GM,FEP,AP,CRO	No	No	No	No
2024010104	MRS. KAU	48	F	NEPHROLOGY	IPD	Dysuria	no microorganism seen						
2024040405	MRS. USH	55	F	NEPHROLOGY	IPD	Fever	GNB seen	Proteus	S-MEM,IMP,CL,AK,CRO,SMZ,AMC,F,LEV,TG,TOB I-CAZ,PiP/TZ,CIP R-GM,FEP,AP	No	No	No	No
2024022901	MISS SONI	24	F	NEPHROLOGY	IPD	Frequent urination	no microorganism seen						
2024022901	MISS SONI	24	F	NEPHROLOGY	IPD	Abdominal pain	GNB seen	Proteus	S-AK,MEM,IMP,CL,CAZ,CRO,SMZ,AMC,F,TOB I-GM,CIP,FEP R-LEV,TG,AP,PiP/TZ	No	No	No	No
2024040405	MR. RANV	65	M	NEPHROLOGY	IPD	Abdominal pain	GNB seen	E.coli	S-IMP,MEM,CAZ,CL,CRO,AMZ,AMC,F,LEV,TOB.TG,GM I-AK,CIP,FEP R-PiP/TZ,AP	No	Yes	Yes	Yes
2024040405	MR. SEIF	17	M	NEPHROLOGY	IPD	Incontinence	GNB seen	Proteus	S-CRO,MEM,IMP,AK,CL,CIP,AMC,F,LEV,TOB,GM,TG I-CAZ,PiP/TZ,FEP R-SMZ,AP	No	Yes	No	Yes
2024010304	MR. VARD	23	M	OBS & GYNAE	OPD	Itching	GNB seen	E.coli	S-MEM,IMP,AK,CL,CRO,CIP,AMC,F,LEV,TG,GM,TOB I-SMZ,CAZ,FEP R-PiP/TZ,AP	No	No	No	Yes
2024040404	MR. SUMA	36	M	OBS & GYNAE	OPD	Incontinence	GNB seen	E.coli	S-CAZ,SMZ,AMC,AP,AK,MEM,CL,IMP ,LEV,TOB,GM I-TG,CIP,FEP ,PiP/TZ R-CRO,F	No	Yes	No	No
2024032604	MR. HARI	49	M	OBS & GYNAE	OPD	Incontinence	GNB seen	Klebsiella	S-CAZ,MEM,IMP,AK,CL,CRO,CIP,AMC,AP,TG,TOB,LEV I-GM,PiP/TZ,FEP R-SMZ,F	No	Yes	No	No
2024040405	MR. ANUJ	28	M	OBS & GYNAE	OPD	Dysuria							
2024040405	MRS. GUL	32	F	OBS & GYNAE	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,CL,AK,CAZ,CRO,PiP/TZ,AMC,AP,GM,TG,LEV I-TOB,SMZ R-CIP,FEP,F	No	No	No	No
2024040405	MR. RAJU	30	M	OBS & GYNAE	IPD	Fever	GNB seen	E.coli	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,AMC,AP,TOB,TG,GM,LEV I-CAZ,CIP R-CRO,FEP,F	No	No	No	No
2024040405	MRS. SURI	55	F	OBS & GYNAE	IPD	Dysuria	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-AMC,TG ,F R-PenG,OX,CLI,GM,AP	Yes	No	No	No
2024040405	MR. RAJU	30	M	OBS & GYNAE	OPD	Abdominal pain	GNB seen	Proteus	S-CAZ,MEM,IMP,AK,CL,CRO,SMZ,AMC,F,LEV,TG,GM I-TOB,CIP R-PiP/TZ,FEP,AP	No	Yes	No	Yes
2024040407	MRS. GOL	51	F	NEPHROLOGY	IPD	Frequent urination	GNB seen	E.coli	S-CRO,MEM,IMP,CL,AK,PiP/TZ,SMZ,CIP,AMC,F,LEV,TG,TOB I-CAZ R-GM,FEP,AP	No	Yes	No	No
2024040407	MR. VICKY	34	M	NEPHROLOGY	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,AK,CL,CRO,CIP,AMC,LEV,TG,GM,TOB I-CAZ,PiP/TZ,FEP R-SMZ,AP,F	No	Yes	No	No
2024040407	MRS. INDR	38	F	NEPHROLOGY	OPD	Frequent urination	no microorganism seen						
2024040406	MISS MAN	25	F	NEPHROLOGY	OPD	Fever	GPC seen	Streptococcus	S-VAN,LzD,TG,PenG,AP,GM,CLI,AMC,F I-SMZ R-LEV,OX	No	No	No	Yes
2024040407	MRS. GEE	38	F	ENT	OPD	fever and frequent urinati	GNB seen	Klebsiella	S-CAZ,CRO,MEM,IMP,AK,CL,PiP/TZ,SMZ,AMC,TOB,GM,LEV I-TG,FEP R-CIP,AP,F	No	Yes	No	No
2024032007	MR. RAM I	46	M	GENERAL MEI	OPD	Frequent urination	GNB seen	E.coli	S-CRO,MEM,IMP,CL,AK,AMC,LEV,TG,GM,TOB I-CAZ,CIP,FEP R-PiP/TZ,AP,F,SMZ	no	No	No	No
2024032007	MR. RAM I	46	M	NEPHROLOGY	IPD	Dysuria	GNB seen	Enterobacter	S-MEM,IMP,AK,CL,CRO,AMC,LEV,TG,GM,TOB I-CAZ,PiP/TZ,FEP R-SMZ,CIP,AP,F	No	no	No	No
2024040400	BABY OF	1	F	GENERAL MEI	OPD	Abdominal pain	GNB seen	Klebsiella	S-MEM,IMP,CL,AK,CRO,PiP/TZ,SMZ,CIP,AMC LEV,TOB I-CAZ,TG R-GM,FEP,AP,F	No	Yes	No	Yes
2024040404	MR. SHUB	16	M	GENERAL MEI	IPD	Incontinence	GNB seen	Proteus	S-IMP,MEM,AK,CL,CRO,PiP/TZ,AMC,LEV,TOB,GM,TG I-CIP,AP R-SMZ,FEP,F	No	No	No	No
2024040405	MISS GUA	26	F	GENERAL MEI	IPD	Frequent urination	GNB seen	E.coli	S-CAZ,MEM,IMP,AK,CL,CRO,PiP/TZ,SMZ,AMC,FEP.TG,TOB I-GM,CIP R-LEV,AP,F	No	No	Yes	Yes

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
2024040405	MRS. NEE	28	F	GENERAL MEI	OPD	Dysuria	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	yes	No	No	No
2024030200	MRS. PUSI	27	F	OBS & GYNAE	OPD	Fever	GNB seen	Proteus	S-MEM,IMP,AK,CL,CAZ,CRO,PiP/TZ,SMZ,AMC,FEP,GM,TG I-TOB,CIP R-LEV,AP,F	No	No	No	No
2023082304	MRS. REK	35	F	OBS & GYNAE	IPD	Dysuria	no microorganism seen						
2024040400	MRS. ATIS	29	F	OBS & GYNAE	OPD	Itching	GNB seen	E.coli	S-MEM,IMP,AK,CL,CRO,SMZ,AMC,FEP,AP ,LEV,TG,GM,TOB I-CAZ,CIP R-PiP/TZ,F	No	No	No	No
2024040400	MRS. MUS	32	F	OBS & GYNAE	OPD	Dysuria	GNB seen	Klebsiella	S-MEM,IMP,AK,CL,CAZ,PiP/TZ,SMZ,AMC,FEP,LEV,TG,GM I-TOB,CIP R-CRO,AP,F	No	Yes	No	No
2024040400	MRS. SEEN	40	F	OBS & GYNAE	IPD	Abdominal pain	GNB seen	E.coli	S-MEM,IMP,CL,CAZ,CRO,PiP/TZ,AMC,FEP,F,LEV,GM I-TG,SMZ R-AK,CIP,AP,TOB	No	No	No	No
2024040400	MRS. PREN	23	F	OBS & GYNAE	OPD	Dysuria	no microorganism seen						
2024040401	MRS. SAN	34	F	OBS & GYNAE	OPD	Incontinence	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	yes	No	No	No
2024040401	MRS. SAN	40	F	OBS & GYNAE	IPD	Abdominal pain	GNB seen	E.coli	S-CRO,CIP,PiP/TZ,MEM,IMP,AK,CL,AMC,FEP,LEV,TOB,GM,TG I-CAZ,F R-SMZ,AP	No	No	No	No
2024040401	MRS. ARTI	31	F	OBS & GYNAE	OPD	Itching	GNB seen	Proteus	S-IMP,MEM,AK,CL,CAZ,CRO,SMZ,CIP,AMC,FEP,TG,TOB,LEV I-GM,F R-PiP/TZ,AP	No	No	No	Yes
2024040401	MRS. SAN	35	F	OBS & GYNAE	OPD	Dysuria	no microorganism seen						
2024040401	MR. HEMC	46	M	GENERAL SUR	IPD	Abdominal pain	no microorganism seen						
2024040401	MRS. HASI	71	F	GENERAL SUR	OPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,CL,AK,CAZ,CRO,SMZ,AMC,FEP,AP,LEV,GM,TG I-TOB,PiP/TZ,F R-CIP	No	No	No	No
2024040401	MR. JAVEI	56	M	GENERAL SUR	IPD	Abdominal pain	GNB seen	E.coli	S-CRO,MEM,CL,AK,IMP,PiP/TZ,AMC,FEP,AP,LEV,TG,GM,TOB I-CAZ,CIP R-SMZ,F	No	No	No	No
2024040401	MRS. KAM	54	F	GENERAL SUR	IPD	Itching	GNB seen	Enterobacter	S-CRO,MEM,IMP,CL,AK,PiP/TZ,SMZ,AMC,FEP,GM,TG,LEV I-TOB,F R-CRO,CIP,AP	No	No	Yes	No
2024040402	MR. IKBAI	76	M	GENERAL SUR	OPD	Incontinence	GNB seen	Klebsiella	S-MEM,IMP,AK,CL,CRO,PiP/TZ,SMZ,CIP,AMCTG,LEV,TOB I-CAZ,F R-GM,FEP,AP	No	No	No	Yes
2024040402	MRS. MEE	69	F	GENERAL SUR	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,CL,AK,CRO,SMZ,CIP,AMC,LEV,TG,GM,TOB I-CAZ,F R-PiP/TZ,AP,FEP	No	No	No	No
2024040402	MR. RAVII	78	M	GENERAL SUR	OPD	Dysuria	GNB seen	Proteus	S-IMP,CL,AK,MEM,CAZ,CRO,AMC,AP,F,GM,TOB,LEV I-TG,PiP/TZ,CIP R-SMZ,FEP	No	No	No	Yes
2024040402	MRS. GUD	52	F	GENERAL SUR	OPD	Frequent urination	no microorganism seen						
2024040402	MR. ARHA	66	M	GENERAL SUR	IPD	Fever	GNB seen	E.coli	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,SMZ,AMC,AP,F,LEV,TG,TOB I-GM,CIP R-CRO,FEP	No	Yes	No	No
2024040402	MRS. MAN	77	F	GENERAL SUR	OPD	Frequent urination	GNB seen	Acinetobacter	S-MEM,IMP,CL,AK,CRO,PiP/TZ,SMZ,AMC,FEP,LEV,GM,TG,TOB I-CAZ,F R-CIP,AP	No	No	No	No
2024040402	MR. ATUL	67	M	GENRAL SURG	OPD	Fever	no microorganism seen						
2024040402	MRS. BAB	77	F	GENERAL SUR	IPD	Fever	GNB seen	E.coli	S-IMP,MEM,AK,CL,CRO,SMZ,AMC,FEP,AP,GM,TG,TOB,LEV I-CAZ.CIP R-PiP/TZ,F	no	No	No	No
2024040402	MR. SHIVA	65	M	GENERAL SUR	OPD	Frequent urination	GNB seen	Proteus	S-CAZ,MEM,IMP,CL,AK,CRO,AMC,FEP,AP,LEV,GM,TG,TOB I-PiP/TZ,CIP R-SMZ,F	No	No	No	No
2024040402	MRS. ASH	51	F	GENERAL SUR	OPD	Frequent urination	GPC seen	Staphylococcus	S-VAN,LzD,LEV, SMZ I-F ,AMC,TG R-PenG,OX,CLI,GM,AP	No	No	No	No
2024040403	MR. J.K NI	58	M	GENERALSUR	OPD	Abdominal pain	no microorganism seen						
2024040403	MR. DESH	26	M	ORTHOPAEDI	IPD	Dysuria	GNB seen	Klebsiella	S-CRO,PiP/TZ,MEM,IMP,CL,AK,SMZ,AMC,FEP,LEV,TG,GM,TOB I-CAZ,F R-CIP,AP	No	Yes	No	No
2024040403	MRS. MEG	40	F	ORTHOPAEDI	IPD	Abdominal pain	GNB seen	E.coli	S-MEM,IMP,CL,CAZ,CRO,SMZ,AMC,FEP,GM,TG,TOB I-PiP/TZ,CIP R-AK,LEV,AP,F	No	Yes	No	Yes
2024040403	MR. RAM I	47	M	ORTHOPAEDI	OPD	Frequent urination	GNB seen	Acinetobacter	S-MEM,IMP,AK,CRO,PiP/TZ,SMZ,AMC,F,GM,TOB,LEV I-CL,TG,CIP R-FEP,AP,CAZ	No	no	Yes	No
2024040403	MRS. UTT	22	F	ORTHOPAEDI	OPD	Abdominal pain	GNB seen	E.coli	S-IMP,MEM,AK,CL,PiP/TZ,SMZ,AMC,AP,LEV,GM,TG I-TOB,CIP,F R-CRO,FEP,CAZ	No	No	No	No
2024040403	MR. MOHI	70	M	ORTHOPAEDI	OPD	Frequent urination	NO microorganism seen						
2024040403	MRS. EKT	32	F	ORTHOPAEDI	IPD	Dysuria	GNB seen	E.coli	S-MEM,CL,AK,IMP,CRO,PiP/TZ,AMC,AP,LEV,TOB,GM,TG I-CAZ,CIP,F R-SMZ,FEP	No	No	No	No
2024040403	MR. NISHA	56	M	ORTHOPAEDI	IPD	Itching	GNB seen	E.coli	S-IMP,CL,AK,MEM,CAZ,CRO,PiP/TZ,AMC,AP,TG,TOB,LEV I-GM,SMZ,FEP R-CIP,F	No	Yes	No	Yes
2024040403	MRS. KAV	26	F	ORTHOPAEDI	IPD	Abdominal pain	GNB seen	Klebsiella	S-CRO, IMP ,MEM,CL,AK,PiP/TZ,AMC,AP,TOB,LEV,TG I-CAZ,FEP R-GM,CIP,F,SMZ	No	No	No	Yes
2024040403	MR. JANU	58	M	ORTHOPAEDI	OPD	Abdominal pain	GNB seen	Enterobacter	S-CAZ,SMZ,AMC,AP,MEM,IMP,CL,AK,LEV,TOB,TG,GM I-PiP/TZ,CIP R-CRO,FEP,F	No	no	No	No
2024040403	MR. JAI PR	52	M	ORTHOPAEDI	IPD	Frequent urination	GNB seen	E.coli	S-MEM,IMP,AK,CL,CRO,AMC,AP,LEV,GM,TG,TOB I-CAZ,SMZ,CIP R-PiP/TZ,FEP,F	no	No	No	No
2024040404	MR. SUNII	52	M	ORTHOPAEDI	OPD	Dysuria	GNB seen	Proteus	S-MEM,IMP,CL,AK,CAZ,CRO,AMC,AP,F,GM,TG,LEV I-TOB,CIP R-SMZ,PiP/TZ,FEP	No	No	No	No
2024040404	MRS. SAN	40	F	ORTHOPAEDI	OPD	Abdominal pain	No microorganism seen						
2024040404	MRS. RAJ	65	F	ORTHOPAEDI	IPD	Dysuria	GNB seen	E.coli	S-PiP/TZ,CAZ,MEM,IMP,CL,AK,SMZ,AMC,F,LEV,TG,GM,TOB I-CIP,FEP R-CRO,AP	No	No	No	No
2024040404	MR. NAEE	60	M	ORTHOPAEDI	IPD	Fever	no microorganism seen						
2024040403	BABY RIT	7	F	PAEDIATRICS	IPD	Fever	GNB seen	Pseudomonas	S-CAZ,IMP,MEM,CL,AK,CRO,PiP/TZ,CIP,AMC,F,TOB,GM I-TG,FEP R-LEV,AP,SMZ	No	No	No	No
2024040403	MR. SATY	13	M	PAEDIATRICS	OPD	Incontinence	GPC seen	Streptococcus	S-VAN,LzD,LEV,PenG,CLI,AMC,F I-AP,GM R-TG,OX,SMZ	No	No	No	Yes
2024040403	BABY NEE	1	F	PAEDIATRICS	IPD	Frequent urination	no microorganism seen						
2024040403	MASTER N	3	M	PAEDIATRICS	IPD	Fever	no microorganism seen						
2024040403	BABY SUI	5	F	PAEDIATRICS	IPD	Itching	GNB seen	Proteus	S-MEM,IMP,CL,AK,CAZ,CRO,AMC,LEV,GM,TG,TOB I-PiP/TZ,F R-SMZ,CIP,FEP,AP	No	No	No	No
2024040403	MASTER S	4	M	PAEDIATRICS	IPD	Abdominal pain	GNB seen	Citrobacter	S-CRO,CAZ,MEM,IMP,CL,AK,PiP/TZ,CIP,AMC,F,LEV,TG,GM I-TOB,SMZ R-FEP,AP	No	No	No	No
2024040403	MASTER A	4	M	PAEDIATRICS	OPD	Abdominal pain	GNB seen	E.coli	S-MEM,IMP,CL,AK,CAZ,CRO,PiP/TZ,SMZ,FEP,TOB,TG I-GM,AP,F R-LEV,CIP,AMC	No	Yes	No	No
2024040404	MASTER T	8	M	PAEDIATRICS	IPD	Abdominal pain	GNB seen	E.coli	S-IMP,CAZ,MEM,CL,CRO,PiP/TZ,FEP,TOB I-TG,GM,CIP,AMC,F R-AK,LEV,SMZ,AP	No	Yes	No	No
2024040404	MASTER R	12	M	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
2024040404	MASTER D	10	M	GENERA MED	IPD	Frequent urination	no microorganism seen						
2024040404	MR. SUKK	13	M	PAEDIATRICS	IPD	Fever	GNB seen	E.coli	S-MEM,IMP,CL,AK,CAZ,SMZ,FEP,AP,LEV,TG,GM,TOB I-PiP/TZ,AMC,F R-CRO,CIP	No	No	Yes	Yes
2024040404	MASTER J	2	M	PAEDIATRICS	IPD	Itching	no microorganism seen						

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
2024040404	MASTER M	13	M	PAEDIATRICS	IPD	Itching	GNB seen	E.coli	S-IMP,MEM,AK,CL,CAZ,CIP,AP,LEV,GM,TG,TOB I-PiP/TZ,FEP,F R-CRO,SMZ,AMC	no	No	No	No
2023061004	MASTER R	5	M	PAEDIATRICS	IPD	Frequent urination	GNB seen	Proteus	S-MEM,CL,AK,IMP,CAZ,AP,LEV,TOB,GM,TG I-CRO,CIP,AMC,F R-PiP/TZ,FEP,SMZ	No	No	No	No
2024040404	MR. SHEE	22	M	GENERAL MEI	OPD	Incontinence	GNB seen	E.coli	S-CAZ,MEM,AK,CL,CRO,PiP/TZ,SMZ,FEP,LEV,TG,TOB,GM I-IMP,CIP,F R-SMZ,AMC,AP	No	Yes	No	No
2024040404	MR. RAM I	34	M	GENERAL MEI	IPD	Abdominal pain	GNB seen	Proteus	S-CAZ,PiP/TZ,MEM,IMP,AK,CL,SMZ,CIP,LEV,TG,TOB I-GM,FEP,F R-CRO,AMC,AP	No	No	Yes	No
2024040404	MRS. DEV	53	F	GENERAL MEI	IPD	Dysuria	GNB seen	Enterobacter	S-MEM,IMP,AK,CL,CAZ,CRO,SMZ,CIP,LEV,TG,GM I-PiP/TZ,AMC,F R-TOB,FEP,AP	No	No	No	No
2024030406	MR. AFSAI	32	M	GENERAL MEI	IPD	Fever	no microorganism seen						
2024031107	MRS. URM	35	F	GENERAL MEI	OPD	fever and frequent urinati	GNB seen	E.coli	S-CAZ,MEM,CL,AK,IMP,CRO,CIP,FEP,LEV,TOB,GM,TG I-PiP/TZ,AP,F R-SMZ,AMC	No	Yes	No	No
2024022200	MRS. SUDI	36	F	NEPHROLOGY	IPD	Frequent urination	no microorganism seen						
2024040405	MRS. MEE	48	F	NEPHROLOGY	IPD	Itching	GNB seen	E.coli	S-SMZ,CAZ,PiP/TZ,MEM,IMP,AK,CL.F,LEV,TOB,GM,TG I-CRO,AMC,AP R-CIP,FEP	No	No	No	No
2024040405	MRS. BAB	45	F	UROLOGY	OPD	Abdominal pain	GNB seen	Psuedomonas	S-CRO,MEM,CL,AK,IMP,CAZ,SMZ,FEP,F,GM,TG,TOB I-PiP/TZ,CIP R-LEV,AMC,AP	No	No	No	No
2024040405	MRS. ASH	49	F	UROLOGY	IPD	Frequent urination	GNB seen	Acinetobacter	S-MEM,IMP,AK,CL,CAZ,PiP/TZ,FEP,AP,LEV,TOB,GM,TG I-CRO,CIP,F R-SMZ,AMC	No	No	No	No
2024040406	MASTER C	2	M	UROLOGY	IPD	Fever	no microorganism seen						
2024040406	MISS NISH	28	F	PAEDIATRICS	OPD	Incontinence	no microorganism seen						
2024040406	MRS. ANJA	19	F	PAEDIATRICS	OPD	Fever	GNB seen	E.coli	S-IMP,MEM,CL,AK,CAZ,CRO,PiP/TZ,SMZ,FEP,TOB,LEV,GM I-TG,CIP,F R-CRO,AMC,AP	No	No	No	No
2024030605	MRS. GEE	38	F	GENERAL MEI	IPD	Abdominal pain	no microorganism seen						
2024033009	MASTER H	13	M	GENERAL MEI	IPD	Dysuria	GNB seen	E.coli	S-MEM,AK,IMP,CL,CAZ,SMZ,CIP,AMC,AP,TG,TOB,LEV I-GM,AP,F R-PiP/TZ,FEP,SMZ	No	Yes	No	No
2024040407	MRS. MAN	36	F	GENERAL MEI	OPD	Itching	GNB seen	Klebsiella	S-CAZ,CRO,PiP/TZ,CIP,MEM,IMP,CL,AK,GM,TG,TOB,LEV I-SMZ,FEP,F R-CRO,AMC,AP	No	No	No	No
2024040407	MRS. GOL	51	F	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
2024040407	MR. CHIRA	53	M	GENERAL SUI	OPD	Fever	GNB seen	Citrobacter	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,CIP,AP,TG,TOB,GM I-SMZ,FEP R-LEV,AMC,F,CRO	No	No	No	No
2024040401	MRS. KAV	74	F	RESPIRATORY	OPD	Incontinence	GNB seen	E.coli	S-CAZ,AP,MEM,IMP,AK,CL,PiP/TZ,LEV,TOB,GM,TG I-CRO,AMC,AP R-CIP,FEP,F	No	No	No	No
2024040401	MR. RAHIS	32	M	RESPIRATORY	OPD	Dysuria	GNB seen	Enterobacter	S-MEM,IMP,CL,AK,CAZ,CRO,PiP/TZ,FEP,TOB,GM,TG I-TG,CIP,AMC R-SMZ,AP,F	No	no	no	no
2024040401	MRS. MAN	27	F	RESPIRATORY	IPD	Frequent urination	GNB seen	E.coli	S-AK,IMP,MEM,CAZ,PiP/TZ,SMZ,AP,TG,TOB,LEV I-GM,CIP,FEP R-CRO,AMC,F	No	No	No	No
2024040401	MR. SUNIL	27	M	RESPIRATORY	IPD	Fever	no microorganism seen						
2024040401	MRS. YAS	40	F	RESPIRATORY	IPD	Incontinence	no microorganism seen						
2024040401	MR. HAJI J	63	M	RESPIRATORY	OPD	Abdominal pain	GNB seen	E.coli	S-CAZ,MEM,IMP,AK,CL,CRO,SMZ,CIP,AP,F,TOB,GM,TG I-PiP/TZ,FEP R-LEV,AMC,F	No	No	No	No
2024040401	MRS. REK	71	F	RESPIRATORY	OPD	Abdominal pain	GNB seen	Citrobacter	S-S-MEM,IMP,AK,CL,CAZ,SMZ,FEP,AP,LEV,TG,GM,TOB I-CRO,CIP,AMC R-PiP/TZ,F	No	No	No	Yes
2024040401	MR. SUREI	50	M	RESPIRATORY	IPD	Itching	GNB seen	Acinetobacter	S-CAZ,PiP/TZ,MEM,IMP,AK,CL,FEP,AP,LEV,TG,GM,TOB I-SMZ,AMC R-CRO,CIP,F	No	No	No	No
2024040401	MRS. SON	51	F	RESPIRATORY	IPD	Abdominal pain	no microorganism seen						
2024040401	MR. ISHW	37	M	RESPIRATORY	IPD	Fever	GNB seen	Psuedomonas	S-CAZ,CRO,MEM,IMP,CL,AK,PiP/TZ,SMZ,FEP,LEV,GM,TOB I-TG,CIP,F R-AMC,AP	No	No	GM	No
2024040402	MRS. GAU	64	F	RESPIRATORY	IPD	Fever	GNB seen	E.coli	S-MEM,IMP,CL,CAZ,CRO,PiP/TZ,FEP,LEV,TOB,TG I-GM,CIP,AMC,F R-SMZ,AP,AK	No	Yes	No	Yes
2024040402	MR. DHAR	22	M	RESPIRATORY	IPD	Frequent urination	no microorganism seen						
2024040402	MRS. JAFA	44	F	RESPIRATORY	IPD	Abdominal pain	GNB seen	Proteus	S-CAZ,PiP/TZ,MEM,IMP,CL,AK,FEP,TG,TOB,GM I-CRO,SMZ,AMC,F R-LEV,CIP,AP	No	No	No	No
2024040402	MR. TUSH	33	M	RESPIRATORY	IPD	Dysuria	no microorganism seen						
2024040402	MRS. SAN	69	F	RESPIRATORY	IPD	Fever	no microorganism seen						
2024040402	MR. SONU	26	M	RESPIRATORY	IPD	Frequent urination	GNB seen	Klebsiella	S-CAZ,CRO,MEM,IMP,CL,AK,FEP,TG,GM,TOB,LEV I-PiP/TZ,CIP,AMC,F R-SMZ,AP	No	No	No	No
2024040402	MRS. PRA	28	F	RESPIRATORY	IPD	Frequent urination	GPC seen	Streptococcus	S-VAN,LzD,TG,PenG,SMZ,CLI,F I-AMC,OX R-LEV,AP	No	no	No	Yes
2024032205	BABY ANU	6	F	Dermatology Ve	OPD	Fever	GNB seen	Citrobacter	S-MEM,IMP,AK,CL,CAZ,AP,PiP/TZ,SMZ,AMC,FEP,LEV,TG,GM I-TOB,CIP R-CRO,AP,F	No	No	No	No
2024031605	MR. MANI	53	M	Dermatology Ve	OPD	Itching	GNB seen	E.coli	S-CIP,CRO,CAZ,MEM,IMP,CL,AK,LEV,TG,GM,TOB I-PiP/TZ,FEP,F R-SMZ,AMC,AP	No	No	No	No
2024040400	MR. PAL S	63	M	Dermatology Ve	OPD	Abdominal pain	no microorganism seen						
2024040401	MRS. LEEI	46	F	Dermatology Ve	OPD	Dysuria	GNB seen	Psuedomonas	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,CIP,FEP,LEV,GM,TG,TOB I-SMZ,AMC,F R-CRO,AP	No	No	No	No
2024040401	MR. ARVIN	44	M	Dermatology Ve	IPD	Incontinence	GNB seen	Enterobacter	S-MEM,IMP,CL,AK,CAZ,CRO,CIP,LEV,GM,TG,TOB I-PiP/TZ,FEP,F R-SMZ,AP,CAZ	No	Yes	No	No
2024040401	MRS. FURI	58	F	Dermatology Ve	IPD	Frequent urination	no microorganism seen						
2024040401	MR. FARM	60	M	Dermatology Ve	IPD	Abdominal pain	GNB seen	PSEudomonas	S-MEM,IMP,CL,AK,CAZ,CRO,PiP/TZ,AMC,TG,TOB I-GM,CIP,F R-LEV,SMZ,FEP,AP	NO	NO	No	No
2024040401	MRS. RAJ	23	F	Dermatology Ve	IPD	Fever	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,AP,GM,SMZ,OX,F I-AMC R-PenG,CLI	No	No	No	No
2024040401	MR. RAJU	27	M	Dermatology Ve	OPD	Dysuria	GNB seen	Klebsiella	S-CRO,MEM,IMP,CL,AK,PiP/TZ,AMC,LEV,GM,TG I-CAZ,CIP,F R-TOB,SMZ,FEP,AP	No	No	No	No
2024040401	MRS. SAN	39	F	Dermatology Ve	IPD	Dysuria	GNB seen	Proteus	S-MEM,IMP,AK,CL,CAZ,CRO,PiP/TZ,AP,GM,LEV,TOB I-TG ,CIP,F R-SMZ,AMC,FEP	No	No	No	No
2024040401	MR. JAVEI	47	M	Dermatology Ve	OPD	Itching	no microorganism seen						
2024040401	MRS. PRIT	42	F	Dermatology Ve	IPD	Abdominal pain	no microorganism seen						
2024040402	MR. SHAM	64	M	Dermatology Ve	IPD	Dysuria	GNB seen	E.coli	S-CAZ,MEM,IMP,CL,AK,CRO,PiP/TZ,CIP,LEV,TG,GM I-TOB,F R-SMZ,AMC,FEP,AP	No	No	No	No
2024040402	MRS. JYO	57	F	Dermatology Ve	OPD	Fever	no microorganism seen						
2024040402	MR. SUNIL	61	M	Dermatology Ve	IPD	Abdominal pain	GNB seen	Acinetobacter	S-CRO,PiP/TZ,MEM,IMP,CL,AK,SMZ,AMC,LEV,GM,TG I-CAZ,FEP R-TOB,CIP,F,AP	No	no	No	No
2024040402	MRS. AFRI	27	F	Dermatology Ve	OPD	Itching	GNB seen	PSEudomonas	S-MEM,IMP,CL,AK,CAZ,CRO,PiP/TZ,AMC,TG,TOB,LEV I-GM,FEP,F R-SMZ,CIP,AP				
2024040402	MR. RAJU	52	M	Dermatology Ve	OPD	Fever	GNB seen	Proteus	S-CRO,MEM,IMP,CL,AK,PiP/TZ,SMZ,CIP,F,TOB,GM,TG I-CAZ,FEP R-LEV,AMC,AP	No	Yes	No	No
2024040402	MRS. SUJA	20	F	Dermatology Ve	OPD	Dysuria	GNB seen	E.coli	S-MEM,IMP,CL,AK,PiP/TZ,SMZ,CIP,AMC,LEV,TOB,GM,TG I-CRO,FEP R-CAZ,AP,F	No	Yes	No	Yes
2024022607	MRS. KAL	57	F	UROLOGY	OPD	Incontinence	no microorganism seen	_					

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
202309060	MR. JAIPA	70	M	UROLOGY	IPD	Fever	GNB seen	Klebsiella	S-IMP,CL,AK,MEM,CAZ,CRO,PiP/TZ,CIP,LEV,GM,TOB I-TG,FEP R-SMZ,AMC,AP,F	No	Yes	No	No
202301090	MR. RAME	50	M	UROLOGY	IPD	Frequent urination	no microorganism seen						
202312280	MR. FRAN	80	M	UROLOGY	IPD	Abdominal pain	no microorganism seen						
202404040	MR. BABU	57	M	UROLOGY	IPD	Frequent urination	GNB seen	Enterobacter	S-MEM,IMP,CL,AK,CAZ,PiP/TZ,AMC,AP,TG,TOB I-GM,F,CRO R-LEV,FEP,AP,SMZ	No	No	No	No
202404040	MRS. RINK	38	F	UROLOGY	IPD	Fever	GNB seen	E.coli	S-CRO,MEM,IMP,CL,AK,PiP/TZ,SMZ,AMC ,LEV,TG,GM,TOB I-CRO,CIP R-FEP,AP,F	No	Yes	No	No
202402050	MR. RAKE	50	M	UROLOGY	OPD	Fever	GNB seen	E.coli	S-CAZ,IMP,MEM,CL,AK,CRO,SMZ,CIP,LEV,TG,GM,TOB I-PiP/TZ,F R-AMC,AP,FEP	No	No	No	No
202404040	MR. DULA	42	M	UROLOGY	IPD	Fever	no microorganism seen						
202403270	MR. INTZA	57	M	UROLOGY	IPD	Abdominal pain	no microorganism seen						
202404010	MR. ASAD	27	M	UROLOGY	IPD	Itching	GNB seen	Klebsiella	S-CRO,IMP,CL,AK,MEM,PiP/TZ,CIP,FEP,LEV,TOB,GM,TG I-CAZ,AP,F R-SMZ,AMC	No	No	No	No
202402210	MR. RADH	72	M	UROLOGY	OPD	Frequent urination	no microorganism seen						
202403200	MR. RAM I	46	M	UROLOGY	IPD	Abdominal pain	GNB seen	Proteus	S-MEM,IMP,CL,CAZ,CRO,PiP/TZ,SMZ,AMC,LEV,TOB,TG I-GM,FEP,F R-AK,CIP,AP	no	No	No	No
SMCH.173	Mr. SUMIT	41	M	GENERAL MEI	IPD	Abdominal pain	GNB seen	Enterobacter	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,CIP,AMC,LEV,TG,GM,TOB I-CRO,AP R-SMZ,FEP,F	No	No	No	no
SMCH.173	Mrs. SONI/	38	F	GENERALMEI	OPD	Incontinence	GNB seen	E.coli	S-PiP/TZ,CAZ,MEM,IMP,CL,AK,SMZ,AMC,F,LEV,TG,GM,TOB I-CIP,FEP R-CRO,AP	No	No	No	Yes
SMCH.173	Mrs. NEER	33	F	GENERAL MEI	IPD	Fever	no microorganism seen						
SMCH.173	Mrs. ANKI	25	F	GENERAL MEI	OPD	Frequent urination	GNB seen	Klebsiella	S-CRO,PiP/TZ,MEM,IMP,CL,AK,CAZ,AMC,TOB,TG,LEV I-GM,CIP,F R-SMZ,FEP,AP	No	Yes	No	Yes
SMCH.173	Mrs. NAZIN	41	F	GENERAL MEI	IPD	Dysuria	GPC seen	Streptococcus	S-VAN,LzD,TG,PenG,AP,GM,SMZ,F I-AMC,OX R-LEV,CLI	No	No	No	No
SMCH.173	Mrs. SARIT	32	F	GENERAL SUR	IPD	Incontinence	no microorganism seen						
SMCH.173	Mrs. ANCH	22	F	GENERAL SUR	OPD	Frequent urination	no microorganism seen						
SMCH.173	Mrs. GOM/	25	F	GENERAL MEI	IPD	Dysuria	GNB seen	Enterobacter	S-MEM,IMP,AK,CL,CAZ,SMZ,FEP,AP,LEV,TG,GM,TOB I-CRO,CIP,AMC R-PiP/TZ,F	No	No	No	No
SMCH.173	Mrs. ANUP	47	F	GENERAL MEI	OPD	Fever	no microorganism seen						
SMCH.172	Mr. RAVI S	49	M	GENERAL MEI	OPD	Frequent urination	GNB seen	Acinetobacter	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,AMC,LEV,TG,GM,TOB I-CRO,FEP,F R-SMZ,CIP,AP	No	Yes	No	No
SMCH.173	Ms. MONI	24	F	GENERAL MEI	OPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. SUMIT	20	M	GENERAL SUR	IPD	Fever	no microorganism seen						
SMCH.172	Mr. DILNA	32	M	GENERAL SUR	OPD	Frequent urination	GNB seen	E.coli	S-CRO,MEM,AK,CL,IMP,SMZ,CIP,F,LEV,TOB,TG,GM I-CAZ,AMC,AP R-PiP/TZ,FEP	No	Yes	No	No
SMCH.173	Mr. JAGDA	57	M	GENERAL SUR	OPD	Frequent urination	GNB seen	Klebsiella	S-MEM,IMP,CL,AK,CAZ,CRO,CIP,AP,LEV,TOB,GM,TG I-PiP/TZ,FEP R-SMZ,AMC,F	No	Yes	No	Yes
SMCH.173	Mr. KAMIL	49	M	GENERAL SUR	IPD	Itching	GNB seen	E.coli	S-MEM,AK,CL,CAZ,CRO,PiP/TZ,SMZ,CIP,FEP,GM,TOB I-IMP,TG,F R-LEV,AMC,AP	No	No	No	Yes
SMCH.173	Mr. VINIT	38	M	GENERAL SUR	OPD	Fever	GNB seen	Psuedomonas	S-MEM,IMP,CL,AK,CAZ,CRO,CIP,AP,LEV,TOB,GM,TG I-PiP/TZ,FEP R-SMZ,AMC,F	No	No	No	Yes
SMCH.173	Mr. ASHOK	36	M	GENERAL SUR	OPD	Abdominal pain	GNB seen	E.coli	S-CRO,PiP/TZ,MEM,CL,AK,IMP,CIP,AMC,LEV,TG,GM,TOB I-CAZ,AP R-SMZ,FEP,F	No	No	Yes	Yes
SMCH.173	Mr. DHRU	31	M	GENERAL SUR	IPD	Fever	GNB seen	Enterobacter	S-PiP/TZ,SMZ,MEM,IMP,CL,AK,CIP,AMC,LEV,TG,GM I-CRO,FEP,F R-TOB,CAZ,AP	no	no	No	No
SMCH.173	Mrs. JYOTI	51	F	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mrs. SUNIL	31	F	GENERAL SUR	IPD	Dysuria	no microorganism seen						
SMCH.173	Ms. LAKSH	17	F	GENERAL SUR	IPD	Dysuria	GNB seen	Psuedomonas	S-CAZ,CRO,IMP,MEM,CL,AK,PiP/TZ,CIP,AMC,TG,TOB I-GM,FEP,F R-LEV,SMZ,AP	No	No	No	No
SMCH.173	Mrs. NIHAL	31	F	GENERAL SUR	IPD	Dysuria	no microorganism seen						
SMCH.173	Mrs. BHAW	40	F	GENERAL MEI	IPD	Frequent urination	no microorganism seen						
SMCH.172	Mrs. JYOTI	30	F	GENERAL MEI	IPD	Dysuria	no microorganism seen						
SMCH.173	Mrs. LAXM	45	F	GENERAL MEI	IPD	Fever	no microorganism seen						
SMCH.173	Mrs. REEN	22	F	GENERAL MEI	OPD	Abdominal pain	GNB seen	Enterobacter	S-CRO,PiP/TZ,CIP,AMC,MEM,IMP,CL,AK,LEV,GM,TG,TOB I-CAZ,F R-SMZ,FEP,AP	No	No	No	No
SMCH.173	Mr. RAJKU	34	M	GENERAL MEI	IPD	Abdominal pain	GNB seen	PSEudomonas	S-CAZ,PiP/TZ,MEM,IMP,CL,AK,CIP,TOB,TG,GM,LEV I-CRO,FEP,F R-SMZ,FEP,AP				
SMCH.173	Mrs. SHRIS	24	F	GENERAL MEI	OPD	Itching	GNB seen	Klebsiella	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,CIP,LEV,TG,GM,TOB I-CRO,F R-SMZ,AMC,FEP,AP	No	Yes	No	No
SMCH.173	Baby BHAV	1	F	GENERAL MEI	OPD	Fever	no microorganism seen						
SMCH.173	Mr. AJAY I	57	M	GENERAL MEI	IPD	Frequent urination	GNB seen	E.coli	S-MEM,AK,CAZ,CL,CRO,PiP/TZ,CIP,LEV,TG,GM,TOB I-IMP,FEP,F R-SMZ,AMC,AP	No		No	No
SMCH.173	Mrs. AKHT	54	F	GENERAL MEI	IPD	Dysuria	no microorganism seen						
SMCH.173	Mr. MANO	28	M	NEPHROLOGY	IPD	Abdominal pain	no microorganism seen						
SMCH.173	Mrs. ROOP	65	F	GENERAL MEI	OPD	Abdominal pain	GNB seen	Proteus	S-MEM,IMP,CL,AK,CAZ,PiP/TZ.CIP.AMC,LEV,GM,TG,TOB I-CRO,F R-SMZ,FEP,AP	no	No	No	No
SMCH.173	Mr. MANO	47	M	GENERAL MEI	IPD	Incontinence	GNB seen	E.coli	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,CIP ,LEV,GM,TG,TOB I-CRO,F,SMZ R-AP,FEP,AMC	No	No	No	No
SMCH.173	Mrs. REEN	40	F	GENERAL MEI	OPD	Abdominal pain	no microorganism seen						
SMCH.173	Mr. ROMI	48	M	GENERAL MEI	OPD	Fever	GNB seen	Proteus	S-AK,IMP,MEM,CL,CAZ,CRO,AP,F ,GM,TOB I-TG,PiP/TZ,CIP R-LEV,SMZ,AMC,FEP	No	No	No	Yes
SMCH.173	Mr. ABHIS	50	M	GENERAL MEI	OPD	Fever	no microorganism seen						
SMCH.173	Mr. Suresh	59	M	GENERAL SUR	IPD	Frequent urination	GNB seen	Citrobacter	S-CAZ,MEM,IMP,CL,AK,PiP/TZ,AP,F,LEV,GM,TG,TOB I-CRO,CIP,AMC R-SMZ,FEP	No	No	No	No
SMCH.173	Mr. RAKES	58	M	GENERAL SUR	IPD	Itching	no microorganism seen						
SMCH.173	Mr. KISHA	11	M	GENERAL SUR	IPD	Abdominal pain	GNB seen	Acinetobacter	S-CRO,CAZ,IMP,MEM,CL,AK,PiP/TZ,AP,F,LEV,GM,TOB I-TG,SMZ,FEP R-CIP,AMC	No	No	no	no
SMCH.173	Mr. ZUBAI	15	M	GENERAL SUR	IPD	Abdominal pain	no microorganism seen		,				
SMCH.173	Mrs. BHIM	41	F	GENERAL SUR	OPD	Fever	no microorganism seen						
SMCH.173	Mrs. PUSH	38	F	GENERAL SUR	IPD	Fever	GNB seen	Enterobacter	S-MEM,IMP,CAZ,CRO,CL,SMZ,F,LEV,TG,TOB,GM I-PiP/TZ,AMC R-AK,CIP,FEP,AP	No	No	No	No
SMCH.173	Mr. ABID A	62	M	GENERAL SUR	OPD	Itching	GNB seen	E.coli	S-CAZ,PiP/TZ,MEM,IMP,CL,AK,LEV,GM,TG,TOB I-CRO,CIP,FEP R-SMZ,AMC,FEP,AP	No	Yes	Yes	No

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
SMCH.173	Mr. DEEPA	29	M	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. VINOD	32	M	GENERAL SUR	OPD	Dysuria	GNB seen	Psuedomonas	S-MEM,IMP,CL,AK,CAZ,CRO,AP,F,LEV,TG,GM,TOB I-PiP/TZ,CIP R-SMZ,AMC,FEP	No	Yes	No	No
SMCH.173	Mrs. GODA	66	F	ENT	OPD	Itching	no microorganism seen						
SMCH.173	Ms. SANIY	16	F	ENT	IPD	Fever	GNB seen	Proteus	S-PiP/TZ,MEM,IMP,CL,AK,CAZ,AP,LEV,GM,TG,TOB, I-CRO,SMZ,AMC,FEP I-CIP,F	No	Yes	No	No
SMCH.172	Mr. MADA	62	M	ENT	IPD	Frequent urination	GNB seen	Enterobacter	S-CAZ,MEM,IMP,CL,AK,CRO,SMZ,AP,GM,TG,TOB I-PiP/TZ,CIP,FEP I-LEV,AMC,F	No	No	No	No
SMCH.173	Mrs. RITU	28	F	ENT	IPD	Abdominal pain	no microorganism seen						
SMCH.173	Mr. SATYA	44	M	ENT	IPD	Frequent urination	GNB seen	Acinetobacter	S-CRO,CAZ,MEM,IMP,CL,AK,PiP/TZ,AP,GM,TOB,LEV I-TG,CIP,AMC R-SMZ,FEP,F	No	no	No	no
SMCH.173	Mrs. KAJAI	27	F	ENT	IPD	Fever	no microorganism seen						
SMCH.173	Mrs. SHOB	40	F	ENT	OPD	Dysuria	GNB seen	Klebsiella	S-CAZ,CRO.MEM,IMP,CL,AK,LEV,TG,GM,TOB I-PiP/TZ,SMZ R-CIP,AMC,FEP,F	No	Yes	No	Yes
SMCH.173	Mrs. PREM	47	F	ENT	IPD	Dysuria	no microorganism seen						
SMCH.172	Mr. SURAJ	26	M	ENT	IPD	Fever	GNB seen	Psuedomonas	S-CRO,CAZ,AP,F,MEM,IMP,CL,AK,LEV,TG,TOB,GM I-PiP/TZ,CIP,AMC R-SMZ,FEP	No	No	No	Yes
SMCH.172	Mr. ARVIN	49	M	ENT	OPD	Dysuria	no microorganism seen						
SMCH.173	Mrs. LAXM	37	F	ENT	OPD	Frequent urination	GNB seen	enterobacter	S-MEM,IMP,CL,AK,CAZ,CRO,FEP,GM,TG,TOB I-PiP/TZ,SMZ,F R-LEV,CIP,AMC,AP	No	No	No	No
SMCH.173	Mr. RAVI K	36	M	ENT	IPD	Frequent urination	GNB seen	Enterobacter	S-CAZ,MEM,IMP,CL,AK,CRO,CIP,LEV,GM,TG,TOB I-FEP,F,PiP/TZ R-SMZ,AMC.AP	No	No	No	No
SMCH.173	Mrs. SWAT	21	F	ENT	IPD	Fever	no microorganism seen						
SMCH.173	Ms. ANNU	25	F	ENT	OPD	Abdominal pain	GNB seen	Psuedomonas	S-MEM,IMP,CL,AK,CAZ,CRO,AP,F,LEV,TG,GM,TOB I-PiP/TZ,CIP R-SMZ,AMC,FEP	No	Yes	No	No
SMCH.173	Mrs. SHEE	55	F	ENT	OPD	Dysuria	GNB seen	Enterobacter	S-CRO,PiP/TZ,CIP,AMC,MEM,IMP,CL,AK,LEV,GM,TG,TOB I-CAZ,F R-SMZ,FEP,AP	No	no	No	No
SMCH.173	Ms. MUSK	18	F	GENERAL MEI	OPD	Fever	GNB seen	enterobacter	S-MEM,IMP,CL,AK,CAZ,CRO,CIP,AP,LEV,TOB,GM,TG I-PiP/TZ,FEP R-SMZ,AMC,F	No	no	No	No
SMCH.172	Mrs. LEEL	50	F	GENERAL MEI	IPD	Fever	no microorganism seen						
SMCH.173	Mrs. AMEE	34	F	GENERAL MEI	OPD	Incontinence	no microorganism seen						
SMCH.173	Mr. HRIDE	45	M	GENERAL MEI	IPD	Itching	no microorganism seen						
SMCH.173	Mr. AMIT I	22	M	GENERAL MEI	IPD	Frequent urination	no microorganism seen						
SMCH.172	Mrs. SUDH	35	F	GENERAL MEI	OPD	Abdominal pain	GNB seen	E.coli	S-CRO,MEM,IMP,CL,AK,PiP/TZ,AMC,LEV,GM,TG I-CAZ,CIP,F R-TOB,SMZ,FEP,AP	No	Yes	No	No
SMCH.172	Ms. KAJAL	14	F	GENERAL MEI	IPD	Dysuria	no microorganism seen						
SMCH.172	Mr. IRFAN	61	M	GENERAL MEI	IPD	Dysuria	no microorganism seen						
SMCH.173	Mrs. NEER	49	F	GENERAL MEI	OPD	Frequent urination	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,GM,SMZ,AMC,F I-CLI R-PenG,AP,OX	No	no	No	No
SMCH.172	Mrs. KAHK	35	F	GENERAL MEI	OPD	Fever	no microorganism seen						
SMCH.173	Mrs. RESH	31	F	GENERAL MEI	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mrs. YASO	32	F	GENERAL SUR	IPD	Dysuria	GNB seen	Proteus	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,SMZ,FEP,TOB,LEV,GM I-TG,CIP,F R-CRO,AMC,AP	No	No	No	No
SMCH.172	Mrs. RUBY	39	F	GENERAL SUR	OPD	Fever	GNB seen	Enterobacter	S-MEM,IMP,CL,CAZ,CRO,PiP/TZ,FEP,LEV,TOB,TG I-GM,CIP,AMC,F R-SMZ,AP,AK	No	No	No	No
SMCH.172	Mrs. RESH	36	F	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. SANJA	37	M	GENERAL SUR	OPD	Incontinence	GNB seen	Citrobacter	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,CIP,AP,TG,TOB,GM I-SMZ,FEP R-LEV,AMC,F,CRO	No	No	No	No
SMCH.172	Ms. LARA	37	F	GENERAL SUR	IPD	Abdominal pain	GPC seen	Streptococcus	S-VAN,LzD,LEV,PenG,GM,SMZ,AMC,F I-CLI R-TG,AP,OX	No	No	No	No
SMCH.173	Mrs. SHRU	18	F	GENERAL SUR	OPD	Itching	no microorganism seen						
SMCH.172	Ms. RAJNI	44	F	GENERAL SUR	IPD	Fever	no microorganism seen						
SMCH.172	Mr. RAVI S	32	M	GENERAL SUR	OPD	Incontinence	no microorganism seen						
SMCH.172	Mr. NATHU	63	M	GENERAL SUR	OPD	Fever	GNB seen	Proteus	S-IMP,MEM,AK,CL,CAZ,CRO,SMZ,CIP,AMC,FEP,TG,TOB,LEV I-GM,F R-PiP/TZ,AP	No	No	Yes	
SMCH.172	Mr. RAM .	26	M	GENERAL SUR	OPD	Abdominal pain	GNB seen	Pseudomonas	S-MEM,IMP,AK,CL,CAZ,PiP/TZ,SMZ,AMC,FEP,LEV,TG,GM I-TOB,CIP R-CRO,AP,F				
SMCH.173	Mrs. BABL	39	F	GENERAL SUR	IPD	Frequent urination	GNB seen	Enterobacter	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,SMZ,FEP,TOB,LEV,GM I-TG,CIP,F R-CRO,AMC,AP	no	No	No	no
SMCH.173	Mr. PRAKA	57	M	GENERAL SUR	IPD	Fever	no microorganism seen						
SMCH.173	Mrs. GUDI	51	F	GENERAL SUR	IPD	Abdominal pain	no microorganism seen						
SMCH.173	Dr. MADHU	27	M	GENERAL SUR	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. RAVIN	40	M	GENERAL SUR	IPD	Incontinence	GNB seen	Citrobacter	S-IMP,MEM,CL,AK,CAZ,PiP/TZ,CIP,AP,TG,TOB,GM I-SMZ,FEP R-LEV,AMC,F,CRO	No	Yes	No	no
SMCH.173	Mrs. MANJ	52	F	NEPHROLOGY	OPD	Fever	no microorganism seen						
SMCH.172	Mrs. MAM	41	F	NEPHROLOGY	IPD	Fever	no microorganism seen						
SMCH.173	Mr. KUND	44	M	NEPHROLOGY	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. MAHE	54	M	NEPHROLOGY	IPD	Itching	no microorganism seen						
SMCH.173	Mr. PRATE	35	M	NEPHROLOGY	IPD	Dysuria	GNB seen	Acinetobacter	S-MEM,IMP,AK,CL,CAZ,PiP/TZ,SMZ,AMC,FEP,LEV,TG,GM I-TOB,CIP R-CRO,AP,F	No	No	no	No
SMCH.173	Mrs. SHEE	35	F	NEPHROLOGY	IPD	Fever	GNB seen	Pseudomonas	S-IMP,MEM,AK,CL,CAZ,CRO,SMZ,CIP,AMC,FEP,TG,TOB,LEV I-GM,F R-PiP/TZ,AP				
SMCH.172	Mrs. FARII	29	F	NEPHROLOGY	IPD	Frequent urination	no microorganism seen						
SMCH.173	Mr. PAWA	52	M	NEPHROLOGY	OPD	Fever	no microorganism seen						
SMCH.173	Ms. ALIYA	14	F	GENERAL MEI	IPD	Fever	GNB seen	Enterobacter	S-IMP,CL,AK,MEM,CAZ,CRO,AMC,AP,F,GM,TOB,LEV I-TG,PiP/TZ,CIP R-SMZ,FEP	No	No	no	No
SMCH.173	Mr. SAMEE	18	M	GENERAL MEI	IPD	Frequent urination	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,AP,SMZ,CLI,F I-AMC R-PenG,GM,OX	No	No	No	No
SMCH.173	Ms. FARAI	33	F	OBS & GYNAE	OPD	Abdominal pain	no microorganism seen						
SMCH.173	Mrs. DUKH	80	F	OBS & GYNAE	OPD	Dysuria	GNB seen	enterobacter	S-CAZ,MEM,IMP,CL,AK,CRO,SMZ,AP,GM,TG,TOB I-PiP/TZ,CIP,FEP I-LEV,AMC,F	No	no	No	No

UHID	NAME	AGE (Years)	GENDER	DEPARTMENT	Sample_Type	Symptoms	Microscopy_Result	Organism	Antibiotic_Susceptibility	MRSA_Detected	ESBL_Detected	MBL_Detected	AmpC_Detected
SMCH.1730	Mrs. LAKS	23	F	OBS & GYNAE	OPD	Incontinence	no microorganism seen						
SMCH.1732	Mrs. RUBI	26	F	OBS & GYNAE	OPD	Frequent urination	GNB seen	Proteus	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,AMC,AP,TOB,TG,GM,LEV I-CAZ,CIP R-CRO,FEP,F	No	Yes	No	No
SMCH.1733	Mrs. AFSA	29	F	OBS & GYNAE	IPD	Incontinence	GNB seen	E.coli	S-MEM,IMP,AK,CL,PiP/TZ,SMZ,LEV,GM,TG,TOB I-CAZ,AMC,F R-CRO,CIP,FEP,AP	No	No	No	No
SMCH.1734	Mrs. IMRA	28	F	OBS & GYNAE	OPD	Abdominal pain	GPC seen	Streptococcus	S-VAN,LzD,LEV,TG,AP,SMZ,CLI,F I-AMC R-PenG,GM,OX	No	No	No	No
SMCH.1735	Mrs. NISHA	22	F	OBS & GYNAE	IPD	Fever	no microorganism seen						
SMCH.1728	Mrs. REKH	26	F	OBS & GYNAE	IPD	Fever	GNB seen	Enterobacter	S-IMP,MEM,CL,AK,CAZ,SMZ,CIP,FEP,GM,TG,TOB I-LEV,CRO,AMC R-PiP/TZ,AP,F	No	No	No	no
SMCH.1729	Ms. SABA	17	F	OBS & GYNAE	OPD	Fever	no microorganism seen						
SMCH.1731	Mrs. LADO	24	F	OBS & GYNAE	IPD	Frequent urination	no microorganism seen						
SMCH.1732	Mr. SHANU	23	M	OBS & GYNAE	IPD	Fever	no microorganism seen						
SMCH.1733	Mr. VIKRA	29	M	OPHTHALMOL	IPD	Itching	no microorganism seen						
SMCH.1736	Mrs. MAYA	68	F	OPHTHALMOL	OPD	Fever	GNB seen	Enterobacter	S-MEM,IMP,AK,CL,CAZ,AP,PiP/TZ,SMZ,AMC,FEP,LEV,TG,GM I-TOB,CIP R-CRO,AP,F	no	no	No	no